# Chapter 7 – Recommended Action Plan

The purpose of this chapter is to present the recommended actions developed following the completion of the multi-county goods movement outreach efforts and the project tasks described in Chapter 1 (and summarized in Chapters 2 through 6). The actions presented in this chapter are based on the premise that simultaneous and continuous investment and improvement in the region's infrastructure and the environment are needed to support the region's goods movement system and economic base. Further, it is intended that the actions and strategies contained is this MCGMAP establish a framework for more in-depth analysis of goods movement infrastructure improvements and mitigation measures throughout the study region.

The following sections in this chapter contain information about the simultaneous and continuous plan premise, a market segmentation approach to improving goods movement, recommended action sets and potential barriers to implementing the plan, environmental strategies that support the plan and the potential future goods movement systems map and proposed improvements, potential fund sources, and the next steps. The Next Steps section is followed by Appendices A, B, C and D. Appendix A contains the financial framework for the plan. Appendix B contains information about other agencies efforts underway. In addition, Appendix B contains tables, charts, and short, mid and long term detailed actions and preliminary regional and county specific infrastructure improvements and mitigation measures that support the Action Plan. Appendix C contains a compendium of stakeholder comments on the final Draft Action Plan. Appendix D contains a list of goods movement infrastructure improvements that were recommended for funding under the Trade Corridor Improvement Fund (TCIF) Program. Lastly, this Action Plan concludes with county goods movement action plan chapters for Los Angeles, Orange, Riverside, San Bernardino, San Diego and Ventura Counties.

## Simultaneous and Continuous Implementation

As stated previously, the movement of goods generates significant economic gains for the region as well as disproportionate impacts on many local communities, the environment, and key transportation corridors. The underlying premise of the MCGMAP, similar to that of the State of California's Goods Movement Plan (the "State's GMAP"), suggests that simultaneous and continuous improvement of the region's goods movement system and the environment is necessary. This MCGMAP premise was adopted after extensive outreach indicated that environmental impacts must be mitigated, and macro–level analyses revealed the existing goods movement system is near capacity and that further strain on the system will likely result in more adverse impacts on the environment and local communities. Moreover, some affected communities have stated that mitigation of existing environmental and community impacts should occur prior to making any further investments in the infrastructure, yet funding for mitigation is not readily available. Also, infrastructure improvements cannot be done without investing in the system to maintain gateways that are used to serve markets throughout the nation, state, and region and to preserve jobs and other economic gains associated with the logistics industry.

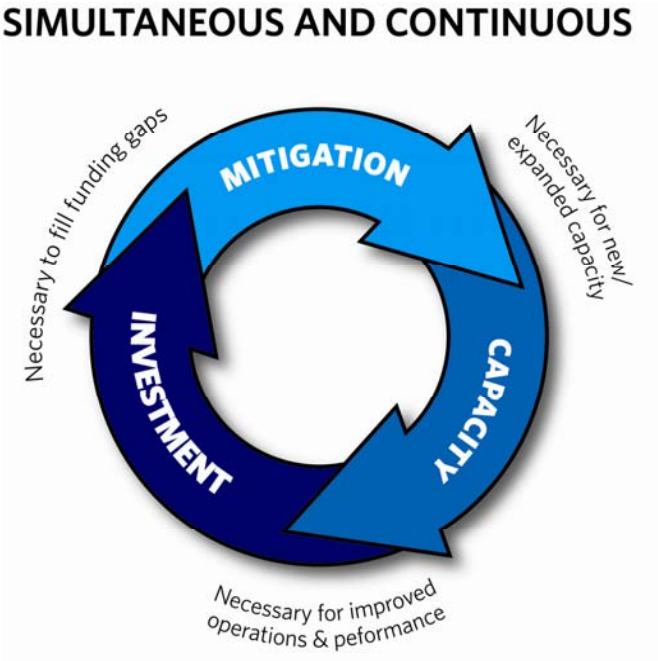
Unfortunately, local impacts cannot be attributed to one single source, which makes it particularly difficult to assign the responsibility to mitigate impacts to those that benefit from goods movement utilizing the regions system. Furthermore, the combined overall effect of the goods movement system and its various components (e.g., modes of transport, distribution facilities, transloading facilities) cause an impact on the region's environment and community that cannot be directly attributed to a single source which also makes it difficult to assign responsibility to mitigate impacts.

Lastly, the actions identified in this plan are consistent with the approach presented in the State's Goods Movement Action Plan (January of 2007) which cites the following: "Right now there are significant challenges requiring action. California's own anticipated population increase, let alone its geographic position as a gateway to the Pacific Rim, are inevitable drivers of goods movement growth. The expansion of trade in California is not a matter of choice. Ignoring this reality is irresponsible. What is responsible is meeting this growing need for infrastructure investment in a manner that addresses critical system improvements and public health and environmental mitigation in a simultaneous and continuous manner."[1] The project description and associated costs contained in this Action Plan are consistent with the State of California's statement that "the total cost of a goods movement related infrastructure project should include the cost of required project-specific mitigation and the combined cost should be funded as the cost of the project".

Figure 55 highlights the cyclical nature of the premise of simultaneous and continuous improvement premise that is summarized and described below in terms of mitigation measures, capacity enhancements, and investments:

1. Mitigation (or reduction/avoidance) of impacts on the environmental and community is necessary to continue to obtain local support for new or expanded capacity of the goods movement system. This includes both project specific (e.g., soundwalls or wetlands mitigation) and broader regional (e.g., air and water quality, public health) mitigation measures.
2. New or expanded capacity infrastructure improvements are needed to maintain Southern California's premier goods movement system of highways and railways as well as the economic vitality of the region. Operational improvements and capacity enhancements that optimize system performance may provide the leverage needed to negotiate shared-funding agreements with the private sector and/or justify additional state and federal funding for the region.
3. Investments from public and private sector fund sources are needed to help pay for mitigation measures and the proposed improvements that are recommended in this Action Plan. The private sector may be more willing to contribute funding if discrete operational and/or performance improvements can be identified.

**Figure 55**




## Market-Segmented Implementation Approach

The study area's goods movement system is a complex multimodal system that contains elements or market segments that can be targeted for specific improvements and/or fair share funding opportunities. By segmenting the goods movement market (defined as the modal-market, or mode of transport), improvements necessary to enhance the movement of goods for specific markets can result in improved operations and system performance that may generate interest on the part of the private sector to contribute funds for these improvements.

### Modal Market Segments

As referenced in Chapter 3, the study region consists of six broad modal segments, as illustrated in the diagram in Figure 56. Each modal market segment presents strategic opportunities for applying specific actions set forth in this chapter. Intermodal rail shipments depicted on the bottom portion of Figure 56 are loaded directly on-dock at the ports without involving trucks on local and regional highways. This mode of transport is indicative of long distance container movements to other parts of the U.S. In contrast, local and regional distribution and delivery shipments, shown on the upper portions of Figure 56, are transported exclusively by trucks on local and regional highways, arterials, and roads. This mode of transport is indicative of how domestic cargo and some local and regional international cargo shipments are typically handled. The market segments in between, on Figure 56, represent cargo that is moved using multiple modes that require staging activities and multiple trips on regional highways before reaching their final destination, which is typically outside of the MCGMAP Region. The following can be concluded from Figure 56:

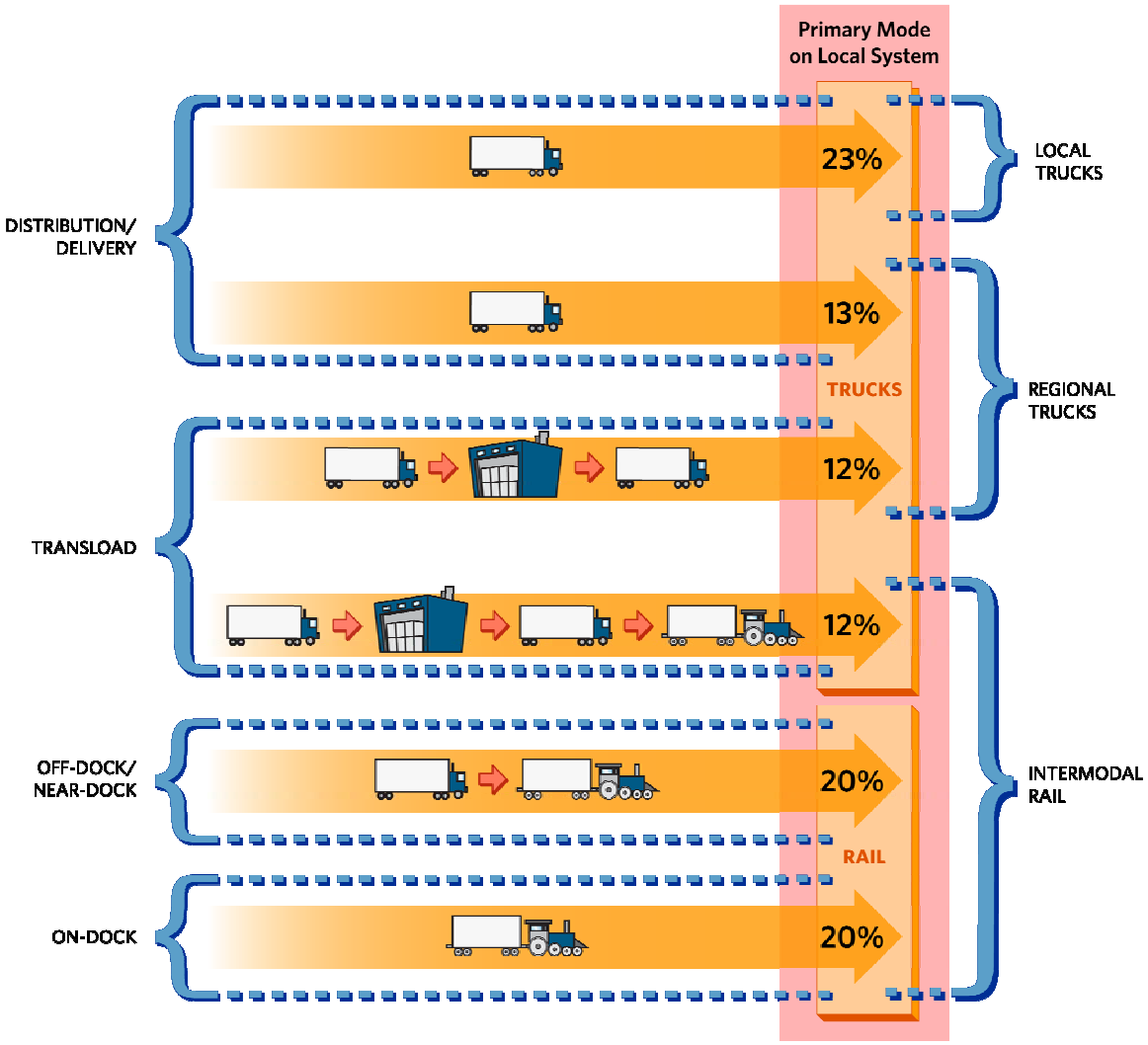
**Direct Shipment from on-dock and off-dock/near dock** - Approximately **40 percent of containers** passing through the Ports of Los Angeles and Long Beach leave the region by train utilizing either on-dock rail at marine terminals or off-dock/near-dock rail intermodal facilities. These goods, destined for areas outside the MCGMAP region, include the central and eastern parts of the U.S. As a result, funding sources for goods movement can be better targeted since the direct benefits to shippers and the nation can be clearly shown. This includes additional state and federal goods movement funding, as well as container fees levied on shippers who receive direct benefits from improved efficiency of the goods movement system.

**Transload** - Approximately **37 percent of containers** passing through the Ports of Los Angeles and Long Beach are either trucked directly out of the region or leave the region by truck after an intermediate stop at a warehouse or distribution center. These goods may arrive at the ports in a single container that is transported to an inland distribution center by truck, and broken down into smaller units at a warehouse or distribution center, and then loaded onto either a truck or a train to be moved to their final destinations. Such goods use more specific routes through the MCGMAP region and provide better opportunities for targeting of specific routes, users, or impacts relative to local distribution/delivery. This includes truck replacement/retrofit programs, the development of separated corridors that move between clustered warehouse and distribution centers, and concepts such as inland ports and virtual container yards (yard operations to reduce the number of unproductive container truck trips). Since the routes and/or destinations of some of the carriers within this market segment can be clearly identified, specific improvements and associated funding sources can be targeted.

**Distribution/Delivery** – Approximately **23 percent of containers** passing through the Ports of Los Angeles and Long Beach stay within the Southern California region. Because the origins and destinations for these goods are as dispersed as the people and communities that rely on them, the trucks transporting these goods use various roadways and routes for travel and blend into all other vehicular traffic within the region. Domestic goods that are moved locally, such as local delivery trucks, construction, manufacturing, and service/utility trucks exhibit similar travel patterns. Because the users and shippers of this modal market are so widely varied, it is difficult to target individual users for funding without ignoring other users. Traditional funding sources for roadway improvements and alternative funding approaches for roadway tolling or congestion pricing will be needed to address this market segment.

However, it is important to note the role of the domestic market. While the region is a major gateway for international container movements, the local and domestic component is dominant and the most intrusive to local residents. The region is the third largest manufacturing center in the United States and is home to almost 20 million residents, all of which results in a high level of demand for local and domestically generated goods movement. The domestic goods movement market segment presents fewer strategic opportunities given its broad and diverse user base that is spread throughout the region. Moreover, the domestic goods movement market utilizes a more dispersed transportation network, compared to the international container market segment which utilizes a more defined transportation network. It is for that reason the international container market presents the greatest strategic opportunity for developing actions that target specific users and beneficiaries of the region's system. Additional data will be required to target specific domestic carriers/users.

## Figure 56
## International Container Movement Market Segments




* All percentages estimated based on 2005 figures.

### Strategic Approach for Improving Goods Movement & Reducing Truck Trips

Trucks and the associated impacts of trucks on the highway system contribute to congestion, diminished air quality due to diesel emissions, and incompatible land uses. These impacts are at the forefront of the goods movement discussions. As referenced earlier, with the exception of on-dock intermodal rail shipments, every other international container shipment involves at least one truck movement. Therefore, the following is proposed to help reduce truck trips:

- Maximize on-dock rail capacity as well as mainline rail capacity for the international container cargo market.
- Develop inland staging areas (inland ports) with a dedicated and separated facility connecting the staging areas to the ports (truck only lanes, rail, maglev or other shuttle technologies), utilizing clean fuel and efficient vehicles (LNG trucks, maglev, LNG locomotives) for international and regional transload container cargo markets. Also, establish land use provisions and strategies that facilitate clustering warehouse activities around inland staging areas that are remote from residential and sensitive land uses.

Implementing the proposals described above would affect approximately 75 percent of all truck movements related to the international container market. As the international container market consists of a known quantity of players (shippers) and users, it offers the greatest opportunity to target improvements on the system to obtain better performance thereby creating the potential to leverage additional funding.

### Strategic Approach for Mitigating, Reducing, or Avoiding Environmental and Community Impacts

Various modal market segments present opportunities to implement environmental mitigation measures in a simultaneous and continuous manner as described below:

- Maximizing on-dock rail capacity results in fewer emissions from local truck trips between the ports and off-dock and near-dock intermodal facilities.
- Developing near-dock intermodal facilities which effectively reduce emissions by reducing the amount of vehicle miles for trucks traveling to more distant off-dock facilities. Near-dock yards create their own set of environmental impacts by increasing truck trips in and around communities located near the ports, requiring a different set of environmental mitigation strategies.
- Developing separate facilities (low-emission high-tech solutions) to accommodate truck movements associated with transload activities provides opportunities for reducing emissions by utilizing cleaner and more efficient vehicles, as well as reducing congestion on the general purpose highway facilities. However, these separate facilities require their own set of specific mitigating strategies.

By segmenting modal markets in the goods movement supply chain through the study region, the improvements to the goods movement system can be targeted to specific modal markets and the associated environmental and community mitigation measures can be identified by the corresponding modal markets.

### Strategic Approach for Investment

The discussions in the previous sections show how a strategic approach for improving goods movement can be applied to mitigating the impact on the environment and community, from a modal-market perspective. In order to achieve the premise of simultaneous and continuous improvement, additional investment and funding is required. This element can also be identified through an evaluation of the modal markets. For example:

- The maximization of on-dock and near-dock rail is specific to the international container cargo market; therefore, the private sector involved in that market (shippers, terminal operators, railroads) offers a potential source for financing the required projects.
- Market segmentation also improves the region's chances for competing for state and federal resources, by allowing projects and mitigation measures to be specifically targeted to the international modal market that uses the region's goods movement system to serve out-of-state jurisdictions.

By linking the projects to improve goods movement and the required environmental and community mitigation measures, the strategic approach allows for a clear assignment of responsibility and operational improvement by modal market. This allows for specific modal markets to be isolated in order to contribute their fair share. Further, actions described in the following section target the region's modal market segments. While the region has a broad range of goods movement market segments (e.g., domestic manufacturing, agriculture, and construction), international containers passing through the region's ports and border crossings are the most visible and present the greatest opportunity to achieve desired results (e.g., reduction in truck trips, potential fair share funding sources) when specific actions are applied.

## Proposed Goods Movement Action Plan & Recommended Action Sets

The Action Plan is structured around four sets of actions that are related to a component or segment of the goods movement modal market in the study area as described in Figure 56 This approach allows for a more targeted and equitable means of transferring some of the economic and environmental costs associated with goods movement to users and/or consumer markets that are outside of the study area and/or have benefited from the region's extensive goods movement infrastructure (e.g. network of highways and railways and warehouses and distribution centers).

The action sets listed below support the premise of simultaneous and continuous improvement that has been adopted by the project partners. Within these broad action sets are more specific recommendations which outline the steps necessary to assure a balanced approach to resolving goods movement issues.

- Action Set 1 – Accelerate Regional Environmental Mitigation
- Action Set 2 – Relieve Congestion and Improve Mobility
- Action Set 3 – Improve Operational Efficiency
- Action Set 4 – Develop Equitable Public/Private Funding Strategy

Table 24 describes the action sets in relation to specific modal markets and contains examples of the specific actions that target each modal market. This table is followed by a detailed description of the four action sets. Appendix B, Table 8, contains a list of agency roles and responsibilities sorted by action. Also, a broader list of detailed actions (or tasks) and implementation schedules sorted by action sets and can be found in Appendix B, Table 9.

## Table 24
## Example Actions Targeted by Market Segment

| FREIGHT MODAL MARKET SEGMENTS | **ACTION 1 -**Accelerate Regional Environmental Mitigation | **ACTION 2 -** Relieve Congestion and Increase Mobility | **ACTION 3 -** Improve Operational Efficiency | **ACTION 4 –** Develop Equitable Public/ Private Funding Strategy |
|---|---|---|---|---|
| **Freight moves destined outside of Southern California (~52%) - No Stops within Region –" Intermodal Rail"** | | | | |
| Freight loaded onto trains at the dock (~20%)<br>Freight transported to near dock facility then onto a train (~20%)<br>Freight transported directly out of the region by truck (~12%) | • Accelerate emission reduction measures in CAAP, AQMD, and state plans<br>• Use clean technology shuttle to intermodal facilities<br>• Use low emission train engines or electrification<br>• Construct grade separations in ACE corridor | • Construct rail mainline capacity improvements<br>• Construct Colton Crossing<br>• Use clean technology shuttle to intermodal facilities | • Increase on-dock loading<br>• Expand hours of port operation (PierPass) and intermodal terminals operation | • Railroad (private) funding and public funding proportional to benefit<br>• User fees (e.g., container fees)<br>• Increase federal participation |
| **Freight moves destined outside of Southern California (~25%) – With at Least One Stop within Region – "Regional Trucks"** | | | | |
| Freight trucked to a warehouse, an intermodal facility and then loaded onto a train (12%)<br>Freight trucked to warehouse, then trucked to a final destination outside of the region (13%) | • Accelerate emission reduction measures in CAAP, AQMD, and state plans<br>• Use clean technology shuttle to inland ports<br>• Use low emission train engines or electrification<br>• Coordinate community impact mitigation and land use planning<br>• Adopt incentive programs for turnover of truck fleet to clean technology | • Construct highway capacity improvements<br>• Study feasibility of dedicated freight guideway(s)<br>• Use clean technology shuttle to inland ports | • Adopt flexible hours of operation (warehouse/ distribution centers)<br>• Study feasibility of virtual container yards<br>• Expand use and integration of Intelligent Transportation Systems for highways and vehicles | • Railroad funding (private) and public funding proportional to benefit<br>• Traditional highway funding<br>• Possible truck tolling on dedicated facilities<br>• Container fees<br>• Increase federal and state participation<br>• Conditions of approval and development fees for community mitigation |
| **Local freight moves within Southern California (~23%) – Multiple Stops within Region – "Local Trucks"** | | | | |
| Freight trucked to numerous locations within the region | • Accelerate emission reduction measures in CAAP, AQMD, and state plans<br>• Continue project-specific impact analysis and mitigation measures | • Construct highway capacity improvements<br>• Study dedicated freight guideway(s) on freeways and roadways | • Adopt flexible hours of operation (delivery)<br>• Expand use and integration of Intelligent Transportation Systems for highways and vehicles<br>• Alleviate physical factors and conditions that may constrain operations of trucks(i.e., lane widths, vertical and horizontal constraints and curvature, shoulders, pavement) | • Traditional highway funding<br>• Possible truck tolling on dedicated facilities<br>• Conditions of approval and development fees for community mitigation |

## Action Set 1 - Accelerate Environmental Mitigation

Goods movement imposes significant costs on community livability and the environment. Therefore, the MCGMAP partners consider air quality improvements and regional environmental mitigation an intrinsic part of a regional goods movement system.

The Action Plan recognizes that a regional approach is necessary, with the focus on cleaning up emissions at the source (i.e., the powertrains of ships, locomotives, trucks, and harbor equipment) not one based simply on project-by-project mitigation. The simultaneous and continuous implementation of environmental mitigation strategies is a leading imperative for this Action Plan and will require action at two levels: (1) region-wide approaches and (2) project-specific mitigation measures.

### Region-wide Approaches

A systems approach is required to reduce the air quality, community and environmental impacts of goods movement flowing into and through the region. This approach has three components – acceleration of the funding and implementation of air quality plans already prepared, strengthening of fuel and engine standards, and institutional policies.

- **Acceleration of funding and implementation of air quality plans** - Some of the nation's most aggressive clean air improvement plans are now in place in Southern California: the San Pedro Bay Ports Clean Air Action Plan (CAAP), the 2007 South Coast Air Quality Management Plan (AQMP), and the California Air Resources Board (CARB) Emission Reduction Plan. The MCGMAP supports these plans and proposes to accelerate the implementation of the strategies in those plans. Accelerating the environmental cleanup from goods movement sources is one of the principle themes of the environmental actions in the MCGMAP.
- **Strengthening of fuel and engine standards** - Regulations that promote the use of clean fuels and engine standards/technologies should be strengthened beyond those currently proposed. This will need to be supported by accelerated research and development of cleaner technologies by private industry, and by implementation assistance from state and federal regulatory agencies. These actions by private industry and regulatory agencies will allow regional and local strategies and incentive programs in the CAAP and AQMD to have greater effect.
- **Institutional policies** – Cooperative and coordinated institutional and development policies enacted by local jurisdictions and the development industry could result in environmental and community benefits. Such policies could include: 1) Designating quiet zones for rail corridors; 2) Amending zoning and land use regulations to better avoid non-compatible land uses (separating goods movement activities from residential areas; buffering); and 3) Establishing mitigation banking and/or development of pooled funds for mitigation (i.e., land use changes, purchasing green space along freight corridors, diesel truck retrofits, funds for health clinics, etc.). The partner agencies have embarked on a collaborative effort with community stakeholders and the private sector to develop such guidelines, as will be explained later.

### Project Specific Mitigation Measures

While the proposed broader regional strategies will result in significant reductions in emissions for the study area as a whole, project specific mitigation measures are often most effective at the local level, resulting in more tangible benefits for local neighborhoods and communities. Therefore, the Action Plan supports the use of project-specific revenue mechanisms to help fund mitigation efforts. Examples include:

- Use of best available technology and best practices for project construction and operational impacts.
- Compliance with natural resource statutes (e.g., federal and state Endangered Species Acts and Clean Water Acts, Migratory Bird Treaty Act).
- Inclusion of "smart" design and good planning principles, such as landscaped buffering, noise barriers, exterior light shielding and positioning, separation of incompatible land uses, and wetlands protection.

SPECIFIC ACTIONS

- Develop guidelines for local jurisdictions to use in siting and designing goods movement related land uses and transportation facilities (Consultant activity is underway).
- Encourage federal participation in developing guidelines and international agreements that regulate vessels (and other stationary sources of diesel emissions) used for transporting goods to and through U.S. ports.
- Support clean lease arrangements made by the ports for reducing ship emissions.
- Initiate a follow-on effort to identify more aggressive goods movement initiatives to achieve regional air quality attainment, including the identification of sources of funding to accelerate the environmental cleanup.

CHALLENGES

- Maintaining dialogue and coordinated planning efforts between MCGMAP project partners, stakeholders, state, and federal agencies to identify impacts and mitigation measures, specifically for broader mitigation measures that involve multiple agencies and jurisdictions.
- Ensuring the public and private sectors, stakeholders and environmental experts are involved in the project planning process from the outset.
- Funding constraints.

## Action Set 2 - Relieve Congestion and Improve Mobility

Region-wide congestion relief and increased mobility cannot be achieved without significant investment in infrastructure, coupled with improvements in efficiency and productivity. Utilizing the market segmentation approach, various crucial capital improvements were identified for each of the modes involved in the movement of goods.

### Increased Intermodal and Mainline Rail Capacity

Increases in mainline rail capacity and on-dock rail improvements at the ports are critical to the efficient transport of intermodal freight bound for destinations outside the region. The Action Plan recommends implementation of rail improvements in accordance with the San Pedro Bay Ports Master Plans as well as triple tracking the BNSF mainline from Los Angeles to San Bernardino and double tracking the two Union

Pacific corridors. These improvements must be done in concert with the grade separations and safety improvements outlined in the multi-county Alameda Corridor East Trade Corridor program. Implementing the mainline rail capacity enhancements together with the grade separation of railroad crossings can maximize efficiency and cost-effectiveness while also providing an opportunity to maximize funding from federal and state sources and accelerate the delivery of the needed improvements. Grade separation of the rail-to-rail Colton crossing as well as other rail-roadway grade separations near the Port of Hueneme, the Port of San Diego and at other key Los Angeles County locations are also critical.

**Improved Highways/Roadways**

For the purposes of segregating the region's diverse highway and roadway system needs, the Plan recommends three tiers of highway/roadway actions. The first tier includes major improvements on roadways and bridges in close proximity to the ports/border crossings and other major freight activity centers (examples include the Gerald Desmond Bridge replacement project, the SR-47 Expressway, I-110 connectors, High Desert Corridor, SR-78 Brawley Bypass, and the San Diego Border Corridors). Tier two is comprised of corridor-level investigation of alternative technologies, separated mass flow applications (i.e., the I-710 Corridor Improvements) as well as dedicated freight guideways/truck lanes with the use of clean engine trucks and/or clean Long Combination Vehicles (LCVs), if such vehicles could be authorized to operate on dedicated facilities in California safely with minimal impacts on surrounding communities. Further consideration of LCVs will require a detailed analysis of potential capital and operational impacts. This tier focuses on new technologies as well as new application of methods not widely used in California. Consequently, these projects will require additional detailed analysis before they can proceed. Tier three projects encompass capital and operational improvements that in addition to assisting with the efficient movement of goods, are also beneficial to mixed flow traffic. Such improvements include modification of key freeway to freeway interchanges to alleviate operational and geometric bottlenecks, addition of auxiliary lanes, shoulder improvements and other safety and operational improvements on roadways heavily used by trucks.

SPECIFIC ACTIONS:

- Complete the Alameda Corridor East (ACE) Trade Corridor railroad grade crossing improvement program in Los Angeles, Orange, Riverside, and San Bernardino Counties.
- Continue with analysis and planning of I-710 dedicated freight guideway facility.
- Further investigate the feasibility of inland port and concentrate inland warehouse and distribution locations.
- Increase border trade capacity and efficiency.
- Implement key highway projects listed as regional and county-specific found in Tables 5 and 6 in the Executive Summary (with expanded descriptions in Tables 5 and 6 found in Appendix B).
- Participate with the railroads in eliminating key bottlenecks and increasing capacity along the mainline rail system as outlined in the Los Angeles-Inland Empire Railroad Mainline Advanced Planning Study.
- Develop the appropriate institutional arrangements and negotiating framework to provide simultaneous and continuous improvement to mainline track improvements, the Colton Crossing grade separation, highway-rail grade separations, locomotive emission reductions, and other rail corridor related mitigations.
- Initiate a Regionally Significant Transportation Investment Study (RSTIS) to evaluate the feasibility of implementing a Dedicated Freight Guideway System/Regional Truck Lanes (I-710 from Port of Long Beach to SR-60; East-West Corridor between the I-710 and to I-15; and I-15 to Victorville) inclusive of potential non-freeway implementation.

CHALLENGES

- Funding constraints.
- Overcoming perceptions that improving mobility and reducing congestion will result in increased environmental and community impacts.
- Maintaining and adhering to the simultaneous and continuous premise.

## Action Set 3 - Improve Operational Efficiency

Any comprehensive strategy to address mobility, improve predictability, and enhance safety needs to address system and corridor capacity. This includes improvements to the operational efficiency of the region's goods movement system. The operational efficiency of various segments of the goods movement system can be improved based on specific modal market segments.

### Improve Marine Terminal Productivity, Truck Turn Times, and Intermodal Operations

In order to meet the future demand, the Ports of Los Angeles and Long Beach will increase their operational productivity from the existing level of 4,700 TEUs per acre per year to almost 11,000 TEUs per acre per year. The current focus is on increasing on-dock rail use and extending hours of operation to off-peak time periods (PierPass). Additional strategies include the transport of unsorted containers from the ports to inland railyards separated from residential areas for the creation of destination trains, as well as introducing new technologies such as optical character recognition (OCR) and radio frequency identification tags (RFID), and the evaluation of the feasibility of a virtual container yard to reduce the number of unproductive empty container truck trips.

### Improve Highway Operations

Increased implementation of Intelligent Transportation Systems (ITS), weigh-in-motion (WIM) systems, highway pricing such as Open Road Tolling (ORT) collection systems, improved incident management, and enforcement of driver and operating restrictions can improve highway operations. ITS solutions allow for truck routing, traffic control during construction or maintenance, as well as the shifting of truck movement to off-peak times. WIM bypass systems are an effective means of traffic management in the proximity of weigh stations. The system helps maintain normal traffic flow and prevents traffic backup onto the mainline freeway resulting from commercial vehicles entering and exiting weigh stations. Open Road Tolling allows users to travel at highway speeds on the mainline while their tolls are collected electronically overhead, reducing congestion and travel times for passenger and commercial vehicles. California has established a statewide standard for use at all toll roads and bridges utilizing the "FasTrak" device.

SPECIFIC ACTIONS

- Implement efficiency improvements contained in the San Pedro Bay Ports Master Plans that reduce impacts from trucks and containers on the transportation system and community.
- Improve terminal productivity, truck turn times, and inter-modal operations.
- Implement the highway operational improvements (listed in Table 6 in the Executive Summary and Table 6 in Appendix B).
- Develop partnerships between public and private entities to research and develop advances in goods movement transportation technologies.

CHALLENGES

- Barriers within various segments of the goods movement industry.
- Competition for physical space, labor and other institutional barriers and practices make it difficult to streamline operations.
- Exploring the use of new and clean advanced transportation technologies for long-term solutions.
- Tracking goods through the supply chain using real time data.

## Action Set 4 - Develop Equitable Public/Private Funding Strategy

Funding and implementation of the recommended actions, projects, and programs and their associated mitigations will require a coordinated effort by the private sector and public sector at all levels of government. It is critical that all beneficiaries of goods movement participate in funding infrastructure improvements as well as environmental mitigation. Beyond its value to the regional economy, the existing border crossings and commercial trade with Mexico are also critical to the regional and bi-national economies. Cross-border goods have origins and destinations to California/regional retail markets and manufacturers to shipping beyond California through the San Pedro Bay Ports and the Inland Empire Rail/Intermodal distribution centers.

To illustrate the shortfall in public funding, the Alameda Corridor-East Trade Corridor, which would provide much needed grade-separation projects to reduce congestion and emissions throughout the region, has an 83 percent funding shortfall ($3.8 billion out of the $4.4 billion total).

### Maximize the Study Area's Fair Share of State and Federal Funds

Federal assistance is essential to compensate for the disproportionate local and regional costs for the goods movement services provided to the rest of the nation. The next national transportation funding reauthorization legislation must recognize the importance of funding a national goods movement system, establish appropriate levels of federal funding support, and provide further opportunity for flexibility in the use of federal funds. The four freight-related programs of key relevance are 1) Projects of National and Regional Significance, 2) National Corridor Infrastructure Improvement Program, 3) Freight Intermodal Distribution Pilot Program, and 4) Truck Parking Facilities Program. Though state and federal funds are needed, any funding for private infrastructure to increase capacity and facilitate the throughput of goods must ensure that public dollars are used in return for public benefits, not merely for benefits to the private logistics system. The development of public-private benefit assessments among the private beneficiaries and public agencies is one method to address this issue.

### Private Sector Contribution

Recognizing funding shortfalls for infrastructure projects and the fact that private industry benefits from an improved goods movement system, the MCGMAP recommends efforts to secure private revenue sources including user fees. This could be done through pending legislative efforts or by other means such as ongoing efforts by the San Pedro Bay ports to negotiate cargo fees for infrastructure and environmental mitigation projects. The types of user fees that should be considered include congestion pricing, port-assessed cargo or container fees, industry-supported programs similar to PierPass, and VMT-based taxes or gas taxes for trucks. The Action Plan addresses the need to convert the value of improvements to the study area's goods movement system into revenue for improving infrastructure and mitigating impacts.

Federal and state funds require local/private matching funds, thus private sector contributions will add strength to applications for leveraging federal and state funds.

Stakeholders in San Diego and Baja California, Mexico are investigating the potential for use of public funds together with private financing and toll fees for a new border crossing, highways, and federal inspection staffing at Otay Mesa East, California / Mesa de Otay II, Baja California. Similar pursuits for new border crossings or expansions are also projected along the Imperial County, California / Mexicali, Baja California border.

SPECIFIC ACTIONS

- Maximize Southern California's fair share of state and federal funds through ongoing and coordinated legislative efforts.
- Provide input to legislation focused on user fees and to any ongoing efforts to negotiate user fees with industry that can be included in a specific plan of finance for goods movement and air quality improvements.
- Pursue public-private funding arrangements for specific facilities, where appropriate.
- Implement the Cooperation Agreement among regional, state, and federal agencies to facilitate the actions contained in the MCGMAP.
- Develop structure for managing user fees and revenue.

CHALLENGES

- Overcoming institutional barriers to user fee program and reaching consensus on whether a fee structure is appropriate, the type of fee structure, and who should pay.
- Reaching consensus on projects with known benefits to the private sector as an incentive to introduce fees with a "sunset".
- Establishing firewalls to assure funds will be used only on designated projects.

# Preliminary Regional and County Specific Goods Movement Projects

The partner agencies identified preliminary regional and county-specific projects and strategies that support the vision for the region and the actions set forth in this plan. Many of the infrastructure projects contained in Tables 5 and 6 in the Executive Summary (with expanded descriptions on Tables 5 and 6 in Appendix B) can be implemented in the short-term while others require additional planning and project development. While the projects on both lists are considered essential, neither list should be viewed as taking precedence over the other but rather as complementary efforts that address the effects of goods movement throughout the region. Also, given the multi-county nature of this study, the majority of the regional and county goods movement projects and strategies will require coordination among the multiple counties, jurisdictions, and stakeholders before full implementation.

Based on the two project lists, an investment of more $50 billion over the next 25 years is necessary to accommodate the projected growth of freight within the region and to mitigate related impacts. This will require funding commitments from all levels of government as well as the private sector. Further, Appendix D contains a list of goods movement infrastructure projects, totaling more than $2 billion for the study area, that were recommended for funding by the California Transportation Commission under the state Trade Corridor Improvement Fund Program (TCIF). The projects recommended for TCIF funding are a subset of the regional and county-specific project lists.

The "Preliminary Regional Goods Movement Projects/Strategies" contained in Table 5 of Appendix B represent a short-term to long-term vision for improving the system that is primarily focused on region-wide projects that provide environmental mitigation and/or ground access (e.g., rail, highway, and intermodal) improvements to and from international gateways, ports of entry, multi-county goods movement distribution centers and corridors (existing and proposed) throughout the study region. This system is graphically depicted and further described in the "Potential Future System" map in Figure 57.

The "Preliminary County-Specific Goods Movement System Projects/Strategies" contained in Table 6 of Appendix B include improvements that are located within a single county that connect to a regional goods movement system of corridors and distribution centers, that are part of the statewide goods movement system that has been identified by Caltrans. Table 9 also comprises a list of improvements that (1) support the regional projects in Table 8, (2) mitigate environmental and/or community impacts in a shorter horizon, (3) correct short-term system deficiencies, and (4) are recommended in advance or in conjunction with the regional projects based on local needs and project readiness. The county-specific list of improvements will fill in the gaps in the existing goods movement network.

In addition, both Tables contain improvements and mitigation measures that help the region move closer to the vision depicted in the potential future goods movement system map (Figure 57). The strategy for implementing the projects and strategies referenced in Tables 8 and 9 in the short, medium, and long- term are described in the next sections. Lastly, Table 7 of Appendix B contains a comprehensive list of the universe of goods movement project which is in various planning stages throughout the study region. This list includes the regional and county specific projects included on Tables 5 and 6 of Appendix B. In addition, the county action plan chapters contain additional projects and strategies that address local needs.

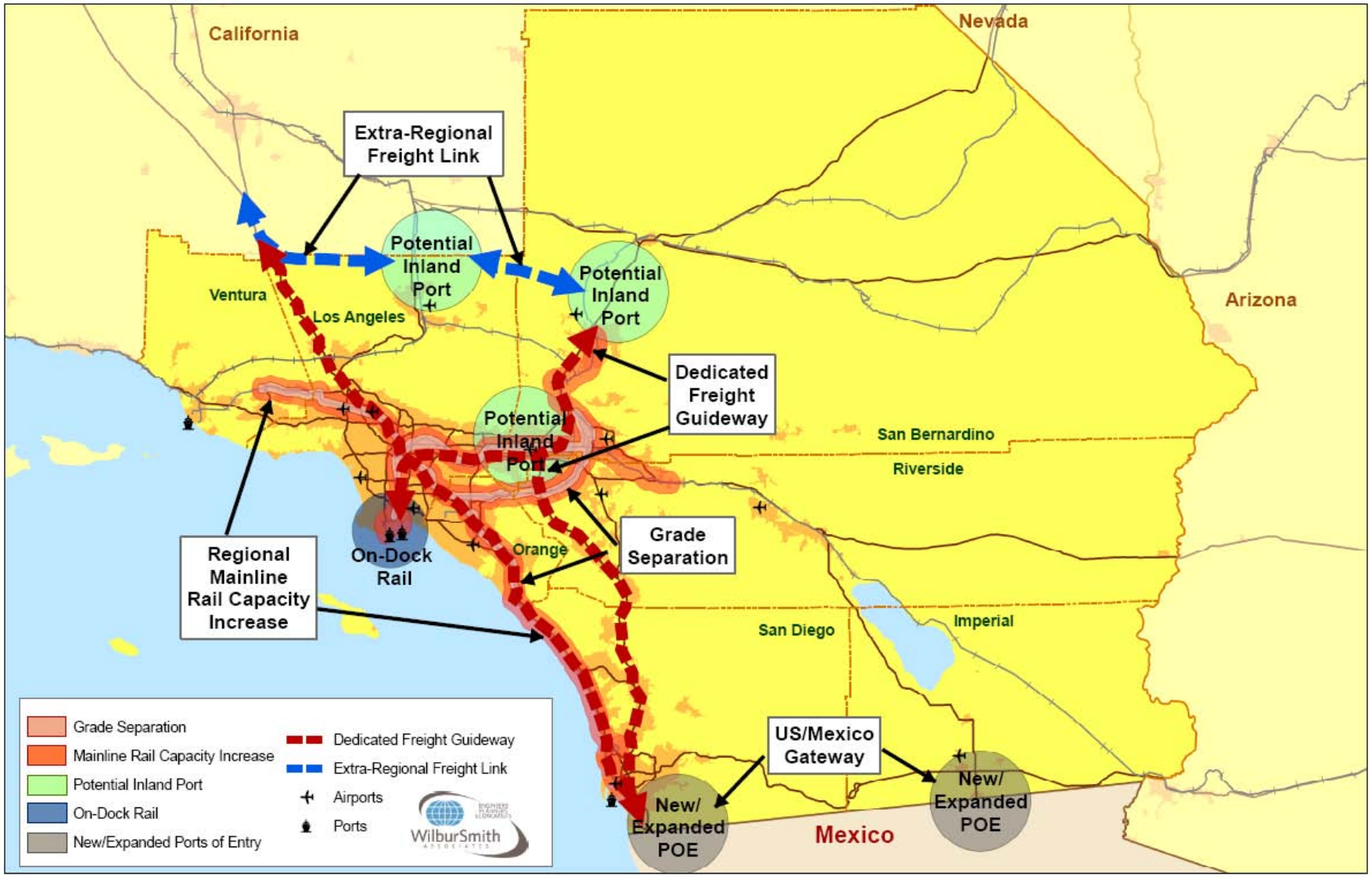



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Figure 57
Potential Future System

## Timeframe for Improvements

In the short term (2008-2015), strategies must rely upon the completion of existing infrastructure projects with secure funding streams aimed at eliminating transportation bottlenecks (e.g., Gerald Desmond Bridge replacement; the ports' on-dock rail developments; BNSF's proposed near-dock yard and Victorville intermodal yard; truck lanes through Cajon and San Gorgonio Passes; Ontario International Airport's air cargo cross dock). The use of pricing to reallocate activity can also be used (e.g., PierPass' OffPeak program; LAX fees encouraging dedicated air cargo carriers to use inland airports; waiving port dockage fees for reduced ship speeds or use of low sulfur fuel). State or federal policies aimed at speeding the construction process (e.g., design-build) or encouraging private sector infrastructure funding (e.g., new market tax credits) can be useful. So can the increased availability of bond funding (e.g., Proposition 1B) and the development of public-private projects (e.g., San Diego County's I-15 HOT lanes). Public-private funding sources (e.g., port-assessed cargo fees and/or gate fees; additional bonds) should be in place to fund specific infrastructure and environmental projects. Legislative mandates (e.g., speeding adoption of Tier III engines), proposed port agreements (e.g., cold ironing, truck replacement and retrofit), and subsidies (e.g., ARB's Carl Moyer Program) also have roles to play. In this period, institutional arrangements and negotiations for longer term public-private funding sources for specific projects can take place, plus the beginning of the approval processes and engineering to ready them for construction. Local and regional planners should be able to set aside specific areas for concentrations of goods handling activities with buffers from population centers.

In the medium term (2015-2025), efforts will still largely be constrained to known technologies. In this time frame, legislatively mandated infrastructure project time frames (e.g., CEQA, NEPA) will have had the time to be met for projects proposed during the short term (e.g., expand mainline track; Colton Crossing; Alameda Corridor-East; dedicated freight guideways; improved airport access). Medium term deadlines for environmental mandates will have to be met. To the extent the state subsidizes the purchase of new equipment to meet these mandates, pricing preferences should be given to local producers (e.g., clean trucks, yard or mainline railroad engines). State tax policy should be used to encourage firms that are developing and producing equipment to meet existing and future environmental mandates (e.g., electric warehouse tools; "green goat" yard engines). Given the advances in technology, workforce training efforts will likely be needed to ensure a trained labor force for both the logistics and infrastructure construction sectors.

In the long term (2025-2035), strategies should be able to rely upon mature public-private funding and operation of infrastructure systems. The legal structure should be available for tapping private investment in projects and accelerating project time frames. Some major infrastructure projects will be completed while others will be ready for construction. Congestion pricing would be available to regulate goods movement along these dedicated public-private corridors. Research and negotiations should be making progress on ways to move goods from the ports to warehouses by methods other than using trucks (e.g., inland rail ports, short haul rail, and possibly maglev trains). Cleaner vehicles should be available for the truck, rail, and aircraft fleet. Governmental purchasing and tax policy should retain its preference for state based producers of equipment and development of technologies to further the expansion and greening of the goods movement system. Workforce training efforts should continue to evolve and commensurate with the technical needs of firms active in the sector.

# Environmental Mitigation Strategies

Without the appropriate environmental and community mitigation measures the future system that is envisioned for the region is not likely to occur. This section identifies a set of good or "best" practices and action steps for mitigating the impacts of goods movement. In addition to identifying known practices that have positive results, new approaches (described in Technical Memorandum 7) are encouraged that include early involvement with the private sector to coordinate mitigation banking efforts, establish land use buffers, and use research grants to identify new technologies that will help address local and broader impacts.

While specific costs or budgets for implementation of mitigation measures (e.g., cost-benefit analyses, environmental assessments) were not a part of the project scope, a detailed discussion of the costs associated with specific environmental and community impact mitigation can be found within the recent study conducted by the Southern California Association of Governments (SCAG) entitled Analysis of Goods Movement Emission Reduction Strategies. In addition, the Clean Air Action Plan (CAAP) provides a number of measures to mitigate environmental and community impacts in and around the San Pedro Bay Ports of Los Angeles and Long Beach.

## Types of Mitigation

In general, the current mechanisms for identifying, avoiding, reducing and mitigating environmental impacts should be improved and expanded. Most environmental impacts are identified and mitigated on a project specific basis pursuant to state and federal regulations. In some instances this is viewed by stakeholders as applying a "band aid" approach to solving the problem without adequately addressing broader regional concerns and local concern. Regional agencies and authorities try to develop plans and identify appropriate mitigation or avoidance measures; yet these measures are typically linked to projects or specific sectors. Therefore, mitigation measures for goods movement should focus on two issues- (1) Project Specific and (2) Broader Regional.

## Project Specific

For project specific mitigation, the California Environmental Quality Act (CEQA) and National Environmental Protection Act (NEPA) regulations require identification of mitigation strategies as part of the project analysis. The project lead agency (for example, Caltrans for a highway project, ACE for the Alameda Corridor, the port of Los Angeles for a port project, etc.) is required to identify mitigation measures as part of the environmental document (EA, EIR, EIS, etc.) If these lead agencies don't identify mitigation measures that are deemed appropriate by a myriad of responsible agencies, trustee agencies, and other public agencies that have jurisdiction by law with respect to the project (reviewing agencies), then the lead agencies will not get the needed permits to do the project and risk potential lawsuits. Once a lead agency adopts/certifies the environmental document and mitigation measures are identified, the agency must also (under CEQA) adopt a Mitigation Monitoring & Report Program, which sometimes involves different agencies for monitoring and enforcement. These agencies are required to fulfill their duty and implement those measures at their own cost as part of the project development process.

Fulfilling the CEQA and NEPA processes is legally binding. The public can pursue legal recourse if the processes are not adhered to correctly. CEQA and NEPA are public disclosure tools. Each time a project is considered, CEQA and NEPA regulation requires disclosure to the public. For EIRs/EISs, public scoping meetings are required, sponsored by the lead agency. Public circulation/comments periods are prescribed per CEQA and NEPA requirements.

In some cases (such as the I-710 / Major Corridor Study Tier 2 Advisory Committee) stakeholder and community members are brought together to identify solutions to address environmental, community, and health impacts with the lead agency and design team. This type of process can be folded into the CEQA/NEPA process to identify project specific mitigation measures. It can also serve as a successful framework for addressing the broader cumulative concerns of a community or region. Also, in some instances, a project does not require any mitigation if there are no significant impacts.

## Broader Regional Issues

Under the Clean Air Act, regional planning officials must consider both public mobility and air quality in their transportation improvement plans. The United States Environmental Protection Agency has established National Ambient Air Quality Standards (NAAQS) for specific pollutants (ozone and its precursors, carbon monoxide, and particulate matter). Regions that do not meet the NAAQS are considered "nonattainment" and have developed plans known as the State Implementation Plan (or the "SIP") to work towards reaching attainment. While there have been some improvements made in improving air quality in the region, over the past 30 years, the study area is in nonattainment for ozone and particulate matter as described in Chapter 5. The emission reduction strategies for regional goods movement that is listed in Table 25 helps to achieve the emissions budgets in the SIP.

The project partners and others have also worked toward developing new approaches to solving the environmental challenges facing the region. During the development of the Action Plan, the project partners convened Environmental Working Group meetings that consisted of agency staff with environmental expertise to share information and to help identify the project partners' role in developing environmental and community impact mitigation measures beyond project-specific mitigation. This type of coordination will be crucial to move broad regional approaches forward**.**

Also, the Southern California National Freight Gateway Cooperation Agreement Strategy (SCNFG) was established to broaden the collective efforts of the project partners to address goods movement issues. This effort involves bringing a group of principal conveners from local, state, and federal agencies together to develop preliminary scoping for topics that include[2]:

- Streamlining processes and approaches for the coordination of environmental reviews and, more specifically, the addressing of cumulative and systemic environmental and community impacts and effects (e.g., those related to environmental justice) under NEPA and CEQA.
- Funding principles and alternatives (including fees and tolls; and, possible institution(s) to hold, disburse and monitor combined funds).

## Implementing and Funding Mitigation

Mitigation and avoidance measures are often tied to available funding. Discrete projects with discrete mitigation or avoidance measures have the highest likelihood of funding (both from a public and private sector perspective). Therefore, in the development and identification of broader strategies to mitigate regional or cumulative impacts, it will be critical to identify a nexus between projects or market segments and specific impacts. It will also be critical to bring all affected groups (stakeholders, community members, public agencies, private industry) together early in the process.

## Mitigation Strategies

Numerous mitigation strategies are available to reduce the effects of goods movement on the community and the environment. Goods movement emissions, primarily mobile source, are a significant source of pollution in the study area. The effects are especially egregious due to the potential direct health impacts resulting from pollutants. The goods movement industry is heavily dependent upon diesel fuel for mobility and operations. As discussed in Chapter 5 (and in Technical Memorandum 5B), diesel fuel results in the emissions of diesel particulate matter (DPM), which has been identified as a toxic air contaminant (TAC) by the state's Office of Environmental Health Hazard Assessment (OEHHA). Diesel fuel is also a significant contributor of nitrogen oxides (NOx), the primary pollutant for ozone formation. Both DPM and NOx are linked to various health issues especially in susceptible populations (the young and the elderly), including cancer, asthma, and preterm and low birth weight babies. Due to the current dependency of the goods movement industry on diesel fuel and the associated environmental and health impacts of diesel emissions, a major focus of this Action Plan is emission reduction. The following sections include emission reduction strategies, general mitigation measures, and institutional policies that are proposed, and in some instances currently underway, to protect public health and to address the environmental impacts in the region.

## Emission Reduction

The goods movement mobile sources targeted for emission reduction include ocean going vessels (or ships), on-road heavy-duty vehicles (or trucks), cargo handling equipment, harbor craft, and railroad locomotives. Aircraft, a goods movement mobile source, generally have not yet been targeted for emission reductions efforts primarily because emissions reporting do not identify aircraft as a significant source of pollutants in comparison to other mobile sources. However, according to the South Coast Air Quality Management District (SCAQMD), "Aircraft will soon be in the top ten NOx categories. Other categories in the top ten are relatively well controlled with the notable exceptions of locomotives and marine vessels. Aircraft emit quantities of NOx comparable to locomotives and all sources of the 'RECLAIM' program – the 320 stationary sources of NOx, including all refineries and power plants." The SCAQMD 2003 AQMP estimated that the 2005 annual average aircraft emissions in the SCAB contributed less than 3 percent NOx, 1.6 percent SOx and 0.6 percent PM2.5 of the total emissions from all sources in the Basin.

Many emission reduction strategies can be applied to goods movement, regardless of mode. Such strategies focus on fuel and engine technologies, as well as congestion reduction and operational approaches. Fuels and engine technologies concentrate on the reduction of PM, NOx, and sulfur oxides (SOx) at the source. Congestion reduction and operational strategies can be considered to mitigate the negative effects of goods movement such as corridor congestion, safety concerns for mixed-use traffic, and truck traffic diversion into neighborhoods, in addition to emission reductions. Table 25 presents various emission reduction strategies that have been aggregated from multiple sources, including but not limited to: California Air Resource Board (CARB) Emission Reduction Plan for Ports and Goods Movement in California, San Pedro Bay Ports Clean Air Action Plan (CAAP), and SCAQMD Draft 2007 AQMP.

## General Mitigation Measures

The effects of goods movement on local communities are largely a result of the proximity of goods movement corridors and facilities to the places where people live, work, and recreate. This proximity is unintended; most corridors and facilities were initially constructed in areas with sparse population. Over time, however, the dramatic growth in both population and trade has resulted in encroaching land uses that produce undesirable effects. In addition to the air quality impacts addressed in the previous section, undesirable community effects include noise and vibration, aesthetics, safety, natural resources, land use strategies, and cultural resource impacts. Table 26 identifies various general strategies that may be considered for mitigating the general effects of goods movement. These strategies come from various public agency studies and guidelines including the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), and U.S. Department of Transportation. Industry best practices and resource agency mandates are also sources.

## Institutional Policies

Agencies that have regulatory and/or funding purview for goods movement related activities can influence, either directly or indirectly, the environmental and community effects resulting from the goods movement industry. Table 27 provides a listing of institutional policies that may be considered for mitigating the effects of goods movement. Many of these strategies have already been implemented or are suggested by various sources, including but not limited to: CARB's Emission Reduction Plan and the Ports' CAAP and SCAQMD Draft 2007 AQMP.

## Community/Stakeholder Input on Mitigation Measures

Stakeholders within the MCGMAP region voiced strong concern over the impacts of goods movement on the environment, their communities, and their overall quality of life. Due to the serious environmental, public health, and traffic congestion issues, communities and policy makers have begun to demand mitigation and to challenge proposals for infrastructure capacity enhancement. The stakeholders within the affected communities are opposing key infrastructure improvement projects that could improve current circumstances through additional mitigation and/or funding for mitigation improvements; they are calling for slower growth and mitigation of existing impacts.

The stakeholder outreach process has highlighted the critical need to address community and stakeholder concerns regarding the environmental and community impacts of goods movement while pursuing infrastructure improvements. The mitigation of direct and indirect impacts of specific goods movement projects or related activities must become a part of the process from the start.

## Table 25
## EMISSION REDUCTION STRATEGIES

| FUELS & ENGINE TECHNOLOGIES |
|---|
| **Ships** |
| Low-Sulfur Diesel Fuels |
| Emulsified Diesel |
| Shore-based Electrical Power (Cold Ironing) |
| Dedication of Cleanest Fuels to California Service |
| Diesel oxidation catalyst retrofit |
| Diesel particulate filter (DPF) retrofit |
| Improved Original Equipment Manufacturer (OEM) Engines – main & auxiliary |
| Speed Reduction |
| **Harbor Craft** |
| Cleaner Engines |
| Biodiesel Fuel |
| Liquefied Natural Gas (LNG) |
| Liquefied Petroleum Gas (LPG) |
| Ethanol |
| Diesel oxidation catalyst retrofit |
| DPF retrofit |
| Selective catalytic reduction (SCR) systems |
| Cold Ironing |
| **Cargo Handling Equipment** |
| Fleet modernization with improved OEM Engines |
| Biodiesel Fuel |
| LNG |
| LPG |
| Fuel-cell |
| Electrification |
| Fischer-Tropsch fuel |
| Emulsified diesel |
| Diesel-electric |
| Diesel oxidation catalyst retrofit |
| DPF retrofit |
| **Rail** |
| Biodiesel Fuel |
| LNG |
| Compressed Natural Gas (CNG) |
| Fuel-cell |
| Electrification |
| Fischer-Tropsch fuel |
| Emulsified diesel |
| Diesel-electric hybrid (e.g., Green Goat) |
| Fleet modernization with improved OEM Engines |

## Table 25
## EMISSION REDUCTION STRATEGIES

| FUELS & ENGINE TECHNOLOGIES |
|---|
| On-board engine diagnostics |
| **Trucks** |
| Fleet modernization with improved OEM Engines |
| Biodiesel Fuel |
| LNG |
| CNG |
| Emulsified diesel |
| Propane fuel |
| Diesel-electric hybrid |
| Transport Refrigeration Unit (TRU) engine improvements |
| **CONGESTION REDUCTION/OPERATIONS** |
| Electronic cargo manifest |
| Grade separations at highway-rail crossings |
| Dedicated lanes, including possibility for automobile and truck tolls |
| Rail capacity expansion |
| Extended port and/or distribution gate hours (e.g., PierPass) |
| Shift operations to other ports |
| Modal shift from truck to rail |
| Shuttle trains in lieu of trucks between ports and warehouses (short-haul) |
| Virtual container yard |
| Increased on-dock rail |
| Creation of near-dock rail terminal |
| Engine idling restrictions for rail and trucks |
| Maglev technology |
| Efficiency through facility planning and design |
| Near-dock rail |
| Traffic Management Plan (TMP) – during project construction |

Source: Jones & Stokes. 2006. Additional information is available in CAAP.

## Table 26
## GENERAL MITIGATION MEASURES

| |
|---|
| **Noise & Vibration** |
| Railroad Quiet Zones |
| Grade Separations – reduce noise from train horns & tire/rail interaction |
| Noise barriers (e.g., sound walls, berms) |
| Rubberized asphalt on highways |
| Exhaust mufflers on trucks |
| Tunneling of corridors |
| Building and window insulation |
| Prohibition of truck Jake brake usage |
| Siting/orientation of amplification systems |
| Noise control policy implementation during construction activities |
| **Aesthetics** |
| Landscaping – avoid non-native or invasive vegetation. |
| Barriers – landscaped berms; walls with possible artistic elements |
| Below-grade facilities – prevent visual perception of rail or truck corridors |
| Matte or diffuse building materials in locations of external lighting to prevent glare |
| Property acquisition land use buffering |
| Façade illumination from fixed downlight sources |
| Shielding & aiming of light fixtures |
| Low-level wattage lighting for landscaping and plazas |
| Low-height pedestrian poles, bollards, and steplights |
| Lighting design for minimum necessary illumination generation |
| **Safety** |
| Grade separation |
| Pedestrian crossing improvements |
| **Natural Resources** |
| New, replaced, or replanted vegetation removed shall be native vegetation appropriate to the setting. |
| On a project specific basis, develop a Stormwater Pollution Prevention Plan (SWPPP) if required. |
| Comply with Section 404 of the Clean Water Act concerning activities that result in discharge of dredged, fill, or excavated material in waters of the U.S. |
| Comply with Section 402 of the Clean Water Act and National Pollutant Discharge Elimination System (NPDES) standards during and following construction to ensure that dirt, construction materials, pollutants, or other human-associated materials are not discharged from the project area. |
| Comply with California Department of Fish & Game Section 1600 et seq. |
| Comply with the Migratory Bird Treaty Act. |
| Comply with any locally adopted tree protection ordinances as required |
| Comply with Federal and State Endangered Species Acts |
| Comply with Federal and State Clean Water Acts |
| Comply with Coastal Zone Management Act |
| Comply with Natural Community Conservation Planning (NCCP) Act by coordinating with NCCP/Habitat Conservation Plan (HCP) organizations where applicable. |

## Table 26
## GENERAL MITIGATION MEASURES

| |
|---|
| Recycled water usage for project construction activities and irrigation |
| Design facility elements to accommodate the natural filtration/attenuation of runoff to the maximum extent possible in order to prevent erosion and to preserve more stable soil conditions. |
| **Cultural Resources** |
| Verify the presence of existing or eligible historic resources. Any historic materials removed shall be replaced with materials that are consistent with the original historic design. |
| A certified archaeologist shall monitor project-related ground disturbing activities in areas of archeological sensitivity. |
| Excavation shall be monitored by a qualified paleontologic monitor in areas identified as likely to contain paleontologic resources. |

Source: Jones & Stokes. 2006

## Table 27
## Institutional Policy Listing

| POLICY |
|---|
| Dedication of Cleanest Fuels to California Service |
| Implement Sulfur Emission Control Area (SECA) |
| Monetary incentives/disincentives for vehicle replacements, engine upgrades, and other technology retrofits |
| Regulatory engine idling reduction |
| Mandatory engine performance standards |
| Mandatory emissions controls |
| Anti-idling training & awareness programs |
| Zoning and land use regulations for land use compatibility |
| Community reporting of engine idling violators |
| Enforcement of emissions control requirements |
| Environmental justice considerations & public outreach requirements |
| Establish public-private partnerships for practical and innovative strategies |

Source: Jones & Stokes. 2006.

# Potential Fund Sources

## Opportunities for Project-Specific User Fees

As federal grant funds will be insufficient to address the extensive needs within this region, and state and local traditional fund sources are steadily shrinking, more programs are needed to encourage private sector investment in essential infrastructure improvements. Included among such programs are investment tax credits, loans, and expansion of tax-exempt bonding to projects of both public and private benefit. Similar to the REACH program and the Carl Moyer Program, more market-based approaches should also be encouraged.

Fees negotiated with industry can be an important component of a project-specific plan of finance. To attract private financing it will be important to quantify the costs and benefits to all stakeholders and to establish various safeguards such as firewalls and sunset provisions. It will be important initially to focus on a short list of high priority projects in order to initiate a process for establishing user fees. Once the process is established and the private sector realizes the benefits of the initial key projects, it will likely facilitate implementation of future projects. In addition to financing specific projects, a negotiated user fee approach should also be considered for collecting and banking resources for implementing broader or regional environmental mitigations.

The types of user fees that should be considered include,

- Tolling of regional highways and major bridges, including congestion pricing
- Port-assessed cargo or container fees
- Industry-supported programs similar to the PierPass
- VMT-based gas tax (e.g., Oregon DOT pilot study)

In Southern California, there are two notable examples of successful public-private partnerships: the Alameda Corridor and the PierPass extended gates program. The Alameda Corridor Transportation Authority (ACTA) negotiated a system of railroad user fees to help fund the project. These fees are used to retire debt on revenue bonds and a federal loan. The loan has already been paid back. With PierPass, importers and exporters pay a fee of $50 per TEU to enter the terminals during daytime hours. There is no charge to cargo that enters the terminals at night and on weekends. Since its inception in July 2005, the PierPass program has successfully increased off-peak use of the ports from about 15 percent to about 40 percent.

The Ports of Los Angeles and Long Beach are currently developing a new system of proposed fees to help pay for new trucks and for diesel particulate filters (DPF) for older trucks, as well as user fees to pay for selected infrastructure projects. As proposed, the truck fee would be paid by Licensed Motor Carriers (LMCs), not owner-operators. The fee would be paid for every inbound gate move. The 2007 model year, and newer trucks, and trucks retrofitted with a CARB-approved DPF would be exempt from the fee. The fee would pay for about $1.2 billion of the $1.8 billion clean trucks program. The adopted Clean Air Action Plan calls for 16,000 trucks to be replaced or retrofitted within five years. This means that before major infrastructure projects such as the Gerald Desmond Bridge replacement project are complete, clean trucks will be serving the ports.

A separate proposed fee, not yet formally adopted by the ports, called the Infrastructure and Environmental Cargo Fee (IECF), would be paid by importers and exporters to help pay for selected infrastructure projects,

including on-dock rail improvements, grade separations along the Alameda Corridor-East, the Colton Crossing rail-to-rail grade separation, the Gerald Desmond Bridge, the I-110 Connectors, the Navy Way interchange, and the SR-47 Expressway. Ultimately the fee program may be expanded to help pay for the I-710 truck lanes and other projects that have a clear nexus to the ports in terms of facilitating port cargo movement and/or mitigating the impacts of port-related goods movement. Industry funds are needed to provide the required match to federal grants and to state bond funds. One of the principal objectives of the proposed fee is to "leverage" Proposition 1B bond funds as well as future federal funds through the reauthorization of SAFETEA-LU in 2009.

If the fee program is adopted, the ports may engage a third party to be the actual collection agent which would turn over the proceeds to the ports. The ports would then allocate the funds to the selected projects such as the Alameda Corridor-East and Colton Crossing.

The current fee program being proposed by the ports of Los Angeles and Long Beach involves a "pay-as-you-go" program without the need for borrowing. The advantage of this approach is two-fold. First, the project owner/sponsor can avoid substantial borrowing costs such as interest and other financing fees. Second, the term of the fee is reduced, reducing the burden on the project owner/sponsor and on the fee contributors. This approach is especially attractive to the San Pedro Bay ports because of the high volume of container traffic.

**Establish Institutional Structure for Managing User Fees and Revenue.**

Successful programs for obtaining user fees and revenues, ACTA for example, have developed specific institutional structures to collect, manage, and allocate fees in a manner that is acceptable to all involved parties. Therefore, negotiations for user fees needs to include a discussion of institutional arrangements for revenue collection and allocation to implementing agencies. The collection and distribution of funds must be transparent and viewed as fair to all parties involved. As proposed by the ports, the ports would lead the effort to collect user fees from licensed motor carriers for the clean trucks program and from cargo owners (importers and exporters) for selected infrastructure projects. A third party may be used as the collection agent.

Entities involved in ongoing discussions with industry, including the ports, may want to consider forming key stakeholder agencies, similar to the composition and structure of the Alameda Corridor Transportation Authority (ACTA), to administer the fee collection and fund disbursement program on a project by project basis. An alternative approach would be to expand the role of the committee recently created to develop a Southern California consensus position on the Trade Corridor Improvement Fund (TCIF). The committee currently consists of the CEOs of the County Transportation Commissions, ACTA, the Alameda Corridor-East Construction Authority, and the Ports of Los Angeles and Long Beach. This committee, if expanded to include private sector representatives, could be used to discuss project priorities and to develop a fair allocation of user fee funds.

**Traditional Fund Sources**

The state will receive $23.4 billion in federal funds from SAFETEA-LU between 2005 and 2009, according to the January 2006 report from the California Legislative Office entitled - Funding for Transportation: What the New Federal Act Means for California. This represents 9.7 percent of SAFETEA-LU's $241 billion total funding level.

The majority of projects recommended as a part of the MCGMAP will likely seek earmarks from a number of discretionary programs in future transportation bill reauthorizations. The four freight-related programs of key relevance are 1) Projects of National and Regional Significance, 2) National Corridor Infrastructure Improvement Program, 3) Freight Intermodal Distribution Pilot Program, and 4) Truck Parking Facilities Program. Over the 2005-2009 SAFETEA-LU authorization period, the total funding available through these programs is $3.75 billion. Of the $3.75 billion in earmarks, the Southern California region received approximately $280 million in earmarks representing 7.5 percent of the total, for the following goods movement projects:

- Inland Empire Goods Movement: $55 million
- Alameda Corridor East: $125 million
- Gerald Desmond Bridge: $100 million

In addition to earmarks for these four freight-related programs, SAFETEA-LU provided additional discretionary funding for goods movement projects through the Transportation Improvements discretionary program. Of the $2.56 billion in earmarks through this program, the Southern California region received an additional $30 million representing 1.2 percent of the total, for the Alameda Corridor East project.

Table 28 summarizes the total earmarks for Southern California goods movement projects. Within SAFETEA-LU, there were more than 6,000 projects nationwide that received earmarks totaling $26 billion. As shown on the table below, the four key goods movement projects within the northern study area counties received a total of $330 million, or 1.3 percent of all SAFETEA-LU earmarks. In addition San Diego County and Imperial County received $94.4 million in earmarks for Coordinated Border Infrastructure and High Priority Projects related to the San Diego Port.

**Table 28**
**Summary of SAFETEA-LU Authorizations by Program**

| Project | SAFETEA-LU Earmark (In millions) | Discretionary Program |
|---|---|---|
| Alameda Corridor East | $125 | Projects of National and Regional Significance |
| Gerald Desmond Bridge | $100 | Projects of National and Regional Significance |
| | | |
| Inland Empire Goods Movement Gateway | $55 | Projects of National and Regional Significance |
| | | |
| Alameda Corridor East | $30 | Transportation Improvements |
| Inland Empire Goods Movement Gateway | $20 | High Priority Projects |
| **Subtotal** | **$330** | |
| | | |
| State Route 905 Six-Lane Freeway, San Diego (from Otay Mesa Border Crossing to I-805) | $80 | Coordinated Border Infrastructure Program |
| State Route 11 Four-lane Freeway, San Diego (from SR-905 to Mexico Border) | $0.8 | Coordinated Border Infrastructure Program |
| State Route 78/ Brawley Bypass, Four-Lane Highway, Imperial County (Calexico East Border Crossing-Trade Corridor) | $10 | Coordinated Border Infrastructure Program |
| Grade Separations at 32nd Street and Cesar Chavez Parkway / Harbor Drive, San Diego (10th Avenue Marine Terminal – Truck Access Project) | $1.2 | High Priority Projects |
| Construct Truck Ramp Linking I-5 to the National City Marine Cargo Terminal, National City, San Diego | $2.4 | High Priority Projects |
| **Subtotal** | **$94.4** | |
| **TOTAL** | **$424.4** | |

Federal assistance is essential to compensate for the disproportionate local and regional costs for the goods movement services provided to the rest of the nation. The next national transportation funding reauthorization legislation must recognize the importance of funding a national goods movement system, establish appropriate levels of federal funding support, and provide further opportunity for flexibility in the use of federal funds.

At the state level, the Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act of 2006 (Proposition 1B), approved by voters on November 7, 2006, provides for $19.925 billion in General Obligation bond funds to fund transportation investments statewide. Of this total, $3.1 billion will be set aside in a Ports Infrastructure, Security, and Air Quality Improvement Account to fund goods movement-related infrastructure, emission reductions strategies, and homeland security improvements:

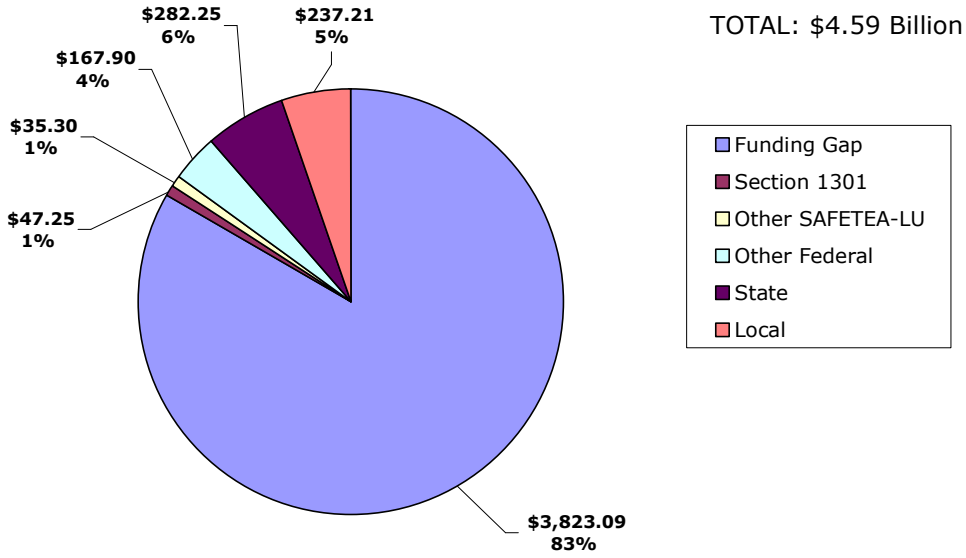
- The Trade Corridor Improvement Fund (TCIF), to be allocated by the California Transportation Commission (CTC), will provide $2 billion for improvements along trade corridors of national significance.
- An additional $1 billion will be allocated by the California Air Resources Board (CARB) for emission reductions from activities related to goods movement.
- $100 million will be allocated to ports for security improvements.

Other components of the infrastructure bond program could potentially fund goods movement-related projects that involve congestion mitigation, intercity passenger rail, and highway-railroad crossing safety.

Despite these new funding resources, there will not be enough funding to pay for all of the necessary infrastructure and mitigation projects recommended for the region. Since many of the projects listed in the Action Plan will provide benefits to the general public, such as highway capacity and operational improvements, it is likely that traditional federal, state, regional, and local funding sources will be part of these individual project financing scenarios. Other freight specific projects affording benefits to industry and generating a revenue stream from user charges may be able to take advantage of more innovative approaches by including private participation as a key revenue source. All levels of government as well as private industry must participate and pay a share to help reduce the funding gap.

While the region has had some success at securing state and federal funds for its most significant projects, the level of funding received has fallen short of its fair share (as described in previous sections). Moreover, many of the projects which present regional and national benefits have significant funding gaps. For example, the Alameda Corridor-East Trade Corridor (as shown in Figure 58) which would provide much needed grade separation projects to reduce congestion and emissions throughout the region has an 83 percent funding gap totaling over $3.8 billion, despite receiving state and federal funding. It is important to stress that the grade separation projects to be funded are intended to mitigate the impact (on local communities) from increased rail intermodal traffic, existing and forecasted. All of this intermodal traffic serves national markets, not local markets. Yet, the impacts are local, and if no action is taken, funding may also become a local burden.

**Figure 58**
**FUNDING SOURCES FOR COMPLETION OF ALAMEDA CORRIDOR EAST TRADE PLAN (2006 Dollars, Millions)**




Source: Alameda Corridor East Trade Corridor FHWA Funding Application, 2006

Local entities should not have to bear the costs of projects that mitigate the impacts of international trade that benefits the entire nation. Effective communication of regional needs will require a coordinated effort, with participants working together to achieve their common objectives. For this reason, the program of projects advanced in the Action Plan should reflect consensus, with goals, anticipated benefits, and strategies for achievements clearly defined.

Of the major investment market segments identified for improvements in the Action Plan, components providing for increasing intermodal lift capacity, increasing mainline rail and specialized truck capacity, and corridor-wide grade separations are considered to have the greatest potential for obtaining federal and state funding as well as having potential for private sector involvement. Other program elements including highway capacity additions and general-purpose lane investments will likely continue to be dependent on formula-based funding from regional and local agencies. Although funding is scarce on all levels, it is even more challenging on the regional and local levels.

## Financial Framework

An examination was conducted of potential fund sources for the projects and strategies described in Chapter 6. This analysis included a review of both traditional fund sources that include existing local, state and federal fund sources, as well as non traditional fund sources such as tolling and/or container fees. Appendix B Table 10 lists various fund sources considered and their applicability to fund various potential goods movement projects by category.

As described previously, the MCGMAP includes 249 projects[3] for the region to improve goods movements. These projects fall into the following three project cost/funding categories:

1. Projects identified without cost estimates: 102 projects;
2. Projects identified with cost estimates and a preliminary funding plan: 50 projects; and
3. Projects identified with cost estimates but without a preliminary funding plan: 97 projects.
    a. Projects identified with cost estimates, 147 projects total

The total cost estimate for the 147 projects with cost estimates is almost $40 billion, while the 50 projects with preliminary funding plans have identified $2.5 billion for these projects. The resulting shortfall for projects with cost estimates is approximately $37.5 billion.

To date the project team has been able to identify project cost estimates for 154 of the 249 projects totaling over $83 billion. However, based on a request to funding partners for individual funding plan details, potential funding sources have not been identified for the large majority of these projects.

A range of funding sources has been identified for a sample of projects. Detailed information is included in Table 10 of Appendix B:

- The Alameda Corridor East Trade Plan, which has a funding shortfall of $3.78 billion dollars. To date the largest funding sources identified are the state ($282.3 million), the four counties ($143,245 million combined) and a SAFETEA-LU earmark ($118,172.3 million). However, only $82.6 million of the SAFETEA-LU earmarks are currently considered fully funded.
- Five infrastructure projects in the San Pedro Bay Ports of Los Angeles and Long Beach area total $2.16 billion of which 22 percent is committed from federal sources and 19 percent is committed from state sources. However, the State General Obligation funds (25 percent of the total) represents the level of funding the San Pedro Bay Ports of Los Angeles and Long Beach would like to receive from Proposition 1B ($2 billion Trade Corridor Infrastructure Fund). Please note that the State's Goods Movement Action Plan only recommended this source for two of the projects (Gerald Desmond Bridge and SR-47 Express) at lower funding levels. Finally, the San Pedro Bay Ports of Los Angeles and Long Beach have proposed that private industry should share in funding these projects which would be through a fee on loaded containers collected from Beneficial Cargo Owners (importers and exporters).
    - The funding plan for the Gerald Desmond Bridge has identified funding sources for the entire $800 million project. The majority of project funding will be provided from federal sources (40 percent - committed), private industry (28 percent) and State G.O. Bonds (25 percent).
    - Funding for the $557 million SR-47 Expressway project has been identified with the largest shares provided by the ports (52 percent), State G.O. Bonds (22 percent) and private industry (22 percent).

  - Funding for the $40 million Navy Way/Seaside Avenue project has been identified with the largest shares provided by private industry (44 percent), State G.O. Bonds (39 percent), and the San Pedro Bay Ports of Los Angeles and Long Beach (17 percent).
  - Funding for the $134 million I-110 Connectors project has been identified with the largest shares provided by State G.O. Bonds (38 percent), private industry (38 percent), and 28 percent from the ports.
  - Industry has been identified as the primary funding source (61 percent) for the $631 million ports Rail Systems project with the remainder to be funded by State G.O. Bonds (39 percent).
- The only identified funding source to add auxiliary lanes on I-10 from I-15 to Ford Street is Measure I funds (68 percent of total costs).
- For San Bernardino's Goods Movement Interchange Program there are 27 interchange projects identified totaling $971 million. Identified funding sources include Measure I funds (52 percent) and Developer Fees (39 percent).

A substantial level of funding, from a variety of sources will be needed to incrementally implement the projects identified in this study. Since many of the projects listed in the Action Plan will provide benefits to the general public, such as highway improvements, it's likely that traditional federal, state, regional, and local funding sources will be part of these individual project financing scenarios. While other freight specific projects may be able to take advantage of more innovative approaches by including private participation as a key revenue source.

As referenced earlier, Table 10 of Appendix B, provides a menu of 45 potential funding sources that could be used to assist in filling identified funding gaps. As shown in the referenced table, the funding sources are divided into six categories and represent a mixture of traditional funding sources and innovative sources: 1) Federal program; 2) State programs; 3) Regional programs; 4) Local programs; 5) User fees; and 6) Innovative Finance, Management of Funds, and Project Delivery Systems. Additionally, the project team has indicated which types of projects would likely be eligible for each source.

Finally, due the scarcity and competition for funding (as individual projects move forward from the regional and county specific lists of projects contained in Appendix B, Tables 5 and 6 and the improvement proposed in the county action plan chapters), it will be important for project sponsors (e.g., project partners, the ports, railroads and others) to evaluate the strengths and weaknesses of a variety of funding sources. This will allow sponsors to target their efforts on those funding sources that will have the highest probability of success.

## Next Steps

This Action Plan should not be viewed as an end point, but rather the beginning of a more comprehensive regional approach to keep freight moving within and through the region and to reduce the environmental and community impacts caused by the movement of that freight. Going forward, stakeholders will play an integral role in the implementing the next steps. Based on feedback from stakeholders and Action Plan recommendations, the MCGMAP project partners are committed to taking the following next steps, in terms of (1) partnership and advocacy, (2) addressing environmental and community impacts, (3) improving mobility, and (4) securing funding:

### Partnership and Advocacy

- Execute and implement the Southern California National Freight Gateway (SCNFG) Cooperation Agreement among federal, state, regional, and other implementing agencies to maintain dialogue to address the challenges outlined in MCGMAP.
- Request the incorporation of MCGMAP strategies and actions into other state, regional and local plans**.**
- Continue to convene multi-county meetings to monitor the progress on the Action Plan and provide annual reports to the CEOs and to the boards of the partner agencies.
- Support and propose legislation that (1) provides funding mechanisms for goods movement projects/strategies, and (2) improves mobility and facilitates regional multi-county goods movement goals without undermining local community priorities and quality of life.
- Support groups such as Mobility 21 and the Coalition for America's Gateways and Trade Corridors in developing dedicated federal and state goods movement funding sources.
- Continue to work closely with all stakeholders including the Councils of Governments, community groups, environmental regulatory agencies and academia.
- Seek good movement and logistics industry involvement throughout planning and project development phases.

### Environmental and Community Impacts

- Through the SCNFG Cooperation Agreement and other related activities, develop a specific set of feasible actions to accelerate implementation of the strategies contained in the various air quality and emission reduction plans that are within the scope of responsibility of the project partners.
- In partnership with CARB, air districts, the logistics industry, and local governments, initiate an activity to generate public and/or private funds to accelerate implementation of air quality improvement strategies being undertaken by these and other entities, including strategies. Examples may include: container fees that provide a revenue stream to fund emissions reduction projects, impact fees paid by entities contributing to the goods-related air quality problem, supplemental transportation infrastructure project mitigation (to add to an air quality funding pool), mitigation banking, market-based strategies, and other vehicle-based fees commensurate with the impacts attributed to those vehicles.
- Complete the Environmental Justice Analysis and Outreach Study for the MCGMAP in Fall 2008. This effort will develop a guidebook for local jurisdictions and the private sector to use in avoiding, minimizing, and mitigating the effects of goods movement infrastructure and to assist local jurisdictions make informed land use decisions.

### Mobility

- Initiate a study to investigate the linkage between industry supply chain trends and port and trade related transportation patterns and movements.
- Continue project development efforts, including planning, design, funding, and implementation of the regional and county-specific projects listed in the Action Plan, including the mitigation of the impacts of those projects.
- Initiate a Regionally Significant Transportation Investment Study (RSTIS) to evaluate the feasibility of implementing a Dedicated Freight Guideway System/Regional Truck Lanes (I-710 From Port of Long Beach to SR-60; East-West Corridor between the I-710 and to I-15; and I-15 to Victorville) inclusive of potential non-freeway implementation.
- Initiate localized studies, as appropriate.

## Funding

- Pursue new avenues of goods movement funding for projects, including the region's fair share of state appropriations, federal funds and reauthorization, and private sector contributions consistent with the impacts of the benefits they derive from the use of the transportation system.
- Continue fair share and user fee discussions with private sector stakeholders to seek their support in addressing goods movement impacts and filling funding gaps. Develop a clear and concise message on this subject and communicate this to the public and policy and funding decision makers at all levels of government.
- Establish structures to manage user fees and revenue that are acceptable to both public and private sector stakeholders.

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| | |
|---|---|
| AADT | Annual Average Daily Traffic |
| ACE | Alameda Corridor East |
| ACTA | Alameda Corridor Transportation Authority |
| AF | United States Air Force |
| ARB | See "CARB" |
| ARZC | Arizona and California Railroad |
| BNSF | Burlington Northern and Santa Fe Railway |
| BUR | Burbank Airport |
| Caltrans | California State Department of Transportation |
| CARB (or ARB) | California Air Resources Board |
| CBRE | C.B. Richard Ellis |
| CEQA | California Environmental Quality Act |
| CofI | City of Industry |
| CTA | Central Terminal Area at LAX |
| CTC | California Transportation Commission or County Transportation Commission |
| CY | Calendar Year |
| CZRY | Carrizo Gorge Railway – the Desert Line |
| EIR | Environmental Impact Report |
| ELA | East Los Angeles |
| EPA | Environmental Protection Agency |
| ERP | Enterprise Resource Planning |
| FAF | Freight Analysis Framework |
| FedEx | Federal Express |
| FERC | Federal Energy Regulatory Commission |
| FEU | Full Equivalent Unit |
| FHWA | Federal Highway Administration |
| FPN | Ferrocarriles Peninsulares del Noroeste |
| FTZ | Foreign Trade Zone |
| FY | Fiscal Year |
| GIS | Geographic Information Systems |
| GPS | Global Positioning System |
| HHDT | Heavy Heavy Duty Truck Classification |
| HOV | High Occupancy Vehicle |
| ICTF | Intermodal Container Transfer Facility |
| ILWU | International Longshoreman and Warehouse Union |
| ITS | Intelligent Transportation Systems |
| IVAG | Imperial Valley Association of Governments |

| | |
|---|---|
| JIC | Just in Case [delivery] |
| JIT | Just in Time [delivery] |
| LACSD | County Sanitation Districts of Los Angeles County |
| LAJ | Los Angeles Junction Railway |
| LATC | Los Angeles Transportation Center |
| LAWA | Los Angeles World Airports |
| LAX | Los Angeles International Airport |
| LCL | Less-Than-Container-Loads |
| LGB | Long Beach Airport |
| LHDT | Light Heavy Duty Truck Classification |
| LNG | Liquefied Natural Gas |
| LOS | Level of Service |
| LOSSAN | Los Angeles to San Diego Rail Corridor |
| LRTP | Long Range Transportation Plan |
| LTL | Less Than Truckload |
| MAT | Millions Annual Tons |
| MCGMAP | Multi-County Goods Movement Action Plan |
| Metro | Los Angeles County Metropolitan Transportation Authority |
| MHDT | Medium Heavy Duty Truck Classification |
| MPO | Metropolitan Planning Organization |
| MRL | Mesquite Regional Landfill |
| MRT | Metric Revenue Tons |
| MSF | Million Square Feet |
| MT | Metric Tons |
| NAFTA | North American Free Trade Agreement |
| NAICS | North American Industry Classification System |
| NAIOP | National Association of Industrial and Office Properties |
| NISC | National Infrastructure Security Committee |
| NOP | Notice of Preparation |
| NRA | Net Rentable Area |
| NRDC | Natural Resources Defense Council |
| NVOCC | Non-Vessel Owning Common Carriers |
| OCTA | Orange County Transportation Authority |
| OJT | On-the-job training |
| ONT | Ontario International Airport |
| PCH | Pacific Coast Highway |
| PDS | Position Detection System |
| PHL | Pacific Harbor Line |

| | |
|---|---|
| POE | Port of Entry (US / Mexico) |
| POLA | Port of Los Angeles |
| POLB | Port of Long Beach |
| PMD | Palmdale Regional Airport |
| PNW | Pacific Northwest |
| RCTC | Riverside County Transportation Commission |
| RFID | Radio Frequency Identification |
| RO/RO | Roll On/Roll Off |
| RTP | Regional Transportation Plan |
| RTIP | Regional Transportation Improvement Program |
| RTW | Round-the-World |
| SAFETEA-LU | Safe, Accountable, Flexible, Efficient Transportation Equity Act - A Legacy for Users |
| SANBAG | San Bernardino Associated Governments |
| SANDAG | San Diego Association of Governments |
| SBD | San Bernardino International Airport |
| SCAG | Southern California Association of Governments |
| SCIG | Southern California International Gateway |
| SCM | Supply Chain Management |
| SCRRA | Southern California Regional Rail Authority |
| SDIY | San Diego and Imperial Valley Railroad |
| SF | Square Feet |
| SIP | State Implementation Plan |
| SNA | John Wayne/Santa Ana Airport |
| SPB | San Pedro Bay |
| 3PL | Third Party Logistics |
| TEU | Twenty-Foot Equivalent Units |
| TOS | Terminal Operating System |
| UP | Union Pacific Railroad |
| UPS | United Parcel Service |
| USPS | US Postal Services |
| VCRR | Ventura County Railroad |
| VCTC | Ventura County Transportation Commission |
| VMT | Vehicle Miles Traveled |
| VNY | Van Nuys Airport |
| YTD | Year to date |

**Assembly Bill (AB) 2650 -** A law passed in the state of California that fines terminal operators if trucks idle outside the terminal gate for more than 30 minutes.

**Air Cargo -** Freight that is moved by air transportation.

**Air Carrier -** An enterprise offering transportation service via air.

**All-Cargo Carrier -** An air carrier transporting cargo only.

**Arterial -** A moderate- or high-capacity highway that is just below an expressway classification. Much like a biological artery, an arterial road carries large volumes of traffic between areas in urban centers. Arterials serve as links between local streets and expressways and freeways with interchanges.

**Average Annual Daily Traffic (AADT) -** A useful and simple measurement of how busy a road is determined by averaging the daily flow of traffic over a year. Consists of a seven-day average of traffic on a roadway facility.

**Balance of Trade -** The surplus or deficit that results from comparing a country's exports and imports of merchandise only.

**Belly Cargo -** Cargo carried in the belly deck below the passenger deck of a passenger aircraft.

**Bobtail -** A truck with shorter bed. Otherwise known as a Straight Truck, Box Truck, or Box Van.

**Boxcar -** An enclosed railcar, typically 40 to 50 feet long, used for packaged freight and some bulk commodities.

**Break-Bulk -** The separation of a consolidated bulk load into smaller individual shipments for delivery to the ultimate consignee. The freight may be moved intact inside the trailer, or it may be interchanged and rehandled to connecting carriers.

**Break-Bulk Cargo -** Cargo shipped as a unit or package (for example: palletized cargo, boxed cargo, large machinery, trucks) but is not containerized.

**Break-Bulk Vessel -** A vessel designed to handle break-bulk cargo.

**Bulk Area -** A storage area for large items that, at a minimum, are most efficiently handled by the palletload.

**Bulk Cargo -** Goods not in packages or containers. See also, Break-Bulk Cargo.

**Bulk Transfer Facilities -** Facilities used primarily for the storage and/or marketing of petroleum products, and/or facilities that receive petroleum products by tanker, barge, or pipeline.

**Cabotage -** The carriage of cargo that originates and terminates within the boundaries of a given country by a carrier of another country.

**Cargo -** Merchandise carried by a means of transportation.

**Cargo-Only Airport -** An airport that has one or more air cargo operators and no passenger operations.

**Carload -** In the rail industry parlance, carload traffic refers to cargo moved in or on boxcars, gondolas, tank cars, flatcars, and other conventional railroad vehicles. Typical carload commodities include lumber, paper, scrap metal, coal, aggregates, chemicals, steel, machinery, and large appliances, among many other things. Trains carrying this traffic are sometimes called carload or merchandise trains.

**Carrier -** An enterprise engaged in the business of transporting goods.

**Classification Yard -** A railroad terminal area where railcars are grouped together in blocks to form train units. These blocks are combined into long distance trains that drop off the blocks at various destinations along their routes.

**Coastal Carriers -** Water carriers providing service along coasts serving ports on the Atlantic or Pacific Oceans or on the Gulf of Mexico.

**Combi Aircraft -** A passenger/cargo aircraft specially designed to carry unitized cargo loads on the upper deck of the craft, forward of the passenger area.

**Container -** A single rigid receptacle without wheels that is used for the transport of goods (a type of carrier equipment into which freight is loaded).

**Container Chassis -** A vehicle built for the purpose of transporting a container so that, when a container and chassis are assembled, the produced unit serves as a road trailer.

**Container Depot -** The storage area for empty containers.

**Container Terminal -** An area designated for the stowage of cargo in containers that may be accessed by truck, rail, or ocean transportation.

**Container Vessel -** A vessel specifically designed for the carriage of containers.

**Container Yard -** The location designated by the carrier for receiving, assembling, holding, storing, and delivering containers, and where containers may be picked up by shippers or redelivered by consignees.

**Containerization -** The technique of using a boxlike device in which a number of packages are stored, protected, and handled as a single unit in transit.

**Cross Dock -** An enterprise that provides services to transfer goods from one piece of transportation equipment to another. Commonly used to transfer shipments between local delivery trucks and long-haul (intercity) trucks.

**Cross-Docking -** The movement of goods directly from receiving dock to shipping dock to eliminate storage expense. Many times a site is chosen to consolidate goods from several origins and reship to the retail or manufacturing site (sometimes called Merge in Transit or Flow Through Distribution).

**Cube Out -** The situation when a piece of equipment has reached its volumetric capacity before reaching the permitted weight limit.

**Customization Centers -** Locations where goods are prepared as floor-ready merchandise based on the latest point of sale data.

**Distribution Center (DC) -** A finished goods warehouse from which a company assembles customer orders.

**Dock -** A space used for receiving merchandise at a freight terminal.

**Enterprise Resource Planning (ERP) -** A cross-functional/regional planning process supporting regional forecasting, distribution planning, operations centers planning, and other planning activities. The process provides the means to plan, analyze, and monitor the flow of demand/supply alignment and to allocate critical resources to support the business plan.

**Export -** To send goods and services to another country.

**Federal Aviation Administration -** The federal agency that administers federal safety regulations governing air transportation.

**First Tier (or Top Tier)** – A term used to point out the leading industry group in a specific sector. This is not typically an official term, but a term used herein to classify the leading entities.

**Foreign Trade Zone (FTZ) -** A site sanctioned by the U.S. Customs Service in which imported goods are exempted from duties until withdrawn for domestic sale or use. Such zones are used by commercial warehouses or assembly plants.

**Freight Forwarder -** An enterprise providing services to facilitate the transport of shipments. Services can include documentation preparation, space and equipment reservation, warehousing, consolidation, delivery, clearance, banking and insurance services, and agency services. The forwarder may facilitate transport by land, air, or ocean, or may specialize in one mode of transport. Also called Forwarder or Foreign Freight Forwarder.

**Freight Analysis Framework (FAF) -** The Freight Analysis Framework, created by the Federal Highway Administration, integrates data from a variety of sources to estimate commodity flows and related freight transportation activity among states, regions, and major international gateways.

**Freight Gateways -** A term generally used to refer to major freight airports, seaports, or intermodal facilities.

**Full Container Load (FCL) -** A term used when goods occupy a whole container.

**Full Equivalent Unit (FEU) -** A unit of measure to account for a full-sized (40-foot long) international container. One FEU equates to two 20-foot Equivalent Units (TEUs).

**Full Truck Load (FTL) -** Same as Full Container Load, but in reference to motor carriage instead of containers.

**Goods -** A term associated with more than one definition: 1) common term indicating movable property, merchandise or wares, 2) all materials used to satisfy demands, 3) whole or part of the cargo received from the shipper, including any equipment supplied by the shipper.

**Goods Movement –** The process and activities involved in the pickup, movement and delivery of goods (agricultural, consumer, and industrial products and raw materials) from producer/points of origin to consumer/point of use or delivery. 'Goods Movement' relies on a series of transportation, financial, and information systems for this to occur, that involves an international, national, state, regional and local networks of

producers and suppliers, carriers and representative agents from the private sector, the public sector (federal, state, regional and local government agencies), and the general public. (Definition taken from *Goods Movement Action Plan,* January 2007)

**Hopper Cars -** Railcars that permit top loading and bottom unloading of bulk commodities; some hopper cars have permanent tops with hatches to provide protection against the elements.

**Hostling Trucks** – A motorized vehicle (small truck) used for moving trailers/chassis around a port terminal or intermodal yard, specifically to transfer cargo containers and equipment from one mode to another.

**Hub -** A central location to which traffic from many cities is directed and from which traffic is fed to other areas.

**Hub Airport -** An airport that serves as the focal point for the origin and termination of long-distance flights; flights from outlying areas meet connecting flights at the hub airport.

**Inland Port –** An inland port can be defined as a transloading center, where international containerized cargo is unloaded from one mode (e.g., truck) and loaded to another mode (e.g., rail). Specific inland ports can take many forms and serve various purposes.

**Integrated Freight Carriers -** Typically refers to air cargo and express carriers that provide door-to-door service via any combination of modes. They control the reliability of service by owning the ground transport operations as well as the air lift capacity, exercising control through ownership (for example, FedEx and UPS). They also use information technology to exercise control.

**Integrated Logistics -** An integrating process that combines the classic logistics functions of physical distribution and materials management with the purchasing of raw materials and/or inventory and sales, marketing, information technology, and strategic planning functions.

**Intermodal -** See Intermodal Transportation.

**Intermodal Facility -** Facilities that allow for the transfer of uniform containers from one mode to another. The term is most commonly associated with a facility that allows for the transfer of containers between rail and truck. It is also used more widely to apply to cargo transfer between ships, barges, railcars, and trailer chassis.

**Intermodal Transportation -** The use of two or more transportation modes to transport freight; for example, rail to ship to truck, most commonly used or applied in industry to describe shipment of containers by rail.

**Inventory Carrying Cost -** A measure to account for the cost of goods in delay. This measure is not commonly used in the public transportation sector.

**Just In Case (JIC) -** An inventory strategy companies use whereby large inventories are kept on hand.

**Just In Time (JIT) -** An inventory strategy companies employ to increase efficiency and decrease waste by receiving goods only as they are needed in the production process, thereby reducing inventory costs. This method requires that producers are able to accurately forecast demand.

**Less than Container Load (LCL) -** A term used when goods do not completely occupy an entire container. When many shippers' goods occupy a single container, each shipper's shipment is considered to be LCL.

**Less-Than-Truckload (LTL) -** A segment of the trucking industry catering to shippers with loads that are less than a full truck load. Shipments that are smaller than a full truckload are combined with other LTL shipments, thereby allowing the LTL trucker to benefit from the economies of scale enjoyed by full truckload truckers.

**Level of Service (LOS) -** A standard measurement used by transportation officials that reflects the relative ease of traffic flow on a scale of A to F, with free-flow conditions being rated LOS A and completely congested conditions rated as LOS F.

**Lift Capacity -** Term used to describe a particular carrier or terminal operator's capacity to handle cargo. Most often (not exclusively) applied to intermodal yards and air cargo carriers.

**Line-Haul -** The long-haul portion of an intermodal trip, typically the main rail trip between the originating and terminating intermodal yards. On either end of the line-haul is the local dray to and from the intermodal yard.

**Local Dray** - A local truck trip to and from an intermodal yard or port or warehouse.

**Logistics -** The process of planning, implementing, and controlling procedures for the efficient and effective storage of goods, services, and related information from the point of origin to the point of consumption for the purpose of conforming to customer requirements. This definition includes inbound, outbound, internal, and external movements.

**Mega Terminals -** In the context of the marine and ports industry, a large terminal built to accommodate the new generation of mega ships (sometimes referred to as post-Panamax). In cases where a new terminal cannot be built, one or more of the existing terminals are tied together to provide the needed acreage and facilities.

**Metric Revenue Tons (MRT) -** Traditionally, cargo volumes through ports were reported in terms of tons (or metric tons). However, containerized cargo tends to have a higher value (revenue) to weight ratio than most non-containerized cargo. While non-containerized cargo has a one-to-one relationship between metric tons (MT) and metric revenue tons, the relationship for containerized cargo is typically greater than one and varies depending on the mix of cargo.

**Metropolitan Planning Organization (MPO) -** A regional transportation planning body required to approve transportation improvement plans, to ensure that they are consistent with federal legislation and that they are fiscally sound. It aims to achieve local consensus between different levels of government and across jurisdictions.

**Mode of Transportation -** The specific type of technology or vehicle involved in the movement of goods and passengers; for example, a railroad, an automobile, an airplane, or a ship.

**Movement of Goods -** The transfer of goods from one location to another.

**Net Rentable Area -** The actual square footage of a building that can be rented.

**Net Weight -** The weight of the merchandise, unpacked, exclusive of any containers.

**Non-Integrated Freight Carriers -** These types of freight carriers serve two functions: (1) provide scheduled service on major traffic lanes, and (2) provide outsourcing, carrying contracted freight for freight forwarders and other airlines. They typically involve a single mode of transport.

**Non-Vessel Operating Common Carrier (NVOCC) -** A firm that offers the same services as an ocean carrier, but does not own or operate a vessel. NVOCCs usually act as consolidators, accepting small shipments (LCL) and consolidating them into full container loads. They also consolidate and disperse international containers that originate at, or are bound for, inland ports. They then act as a shipper, tendering the containers to ocean common carriers. They are required to file tariffs with the Federal Maritime Commission and are subject to the same laws and statutes that apply to primary common carriers.

**North American Free Trade Agreement (NAFTA) -** A free trade agreement, implemented January 1, 1994, between Canada, the United States, and Mexico.

**On-Dock, Near-Dock, Off-Dock Intermodal Facilities -** On-dock intermodal facilities are located in or immediately adjacent to marine terminals. Near-dock intermodal facilities are located within a few miles from port areas. Off-dock intermodal facilities are comparatively distant from port areas.

**Person Hours -** A measure to account for the number of hours spent by the occupants of vehicles in traffic.

**PierPass –** PierPass (or PierPASS) is a not-for-profit organization created by marine terminal operators to reduce congestion and improve air quality in and around the ports of Los Angeles and Long Beach. OffPeak is the off-peak hours program created by PierPass. OffPeak provides an incentive for cargo owners to move cargo at night and on weekends, in order to reduce traffic and pollution during peak daytime traffic hours and to alleviate port congestion (http://www.pierpass.org/about_pierpass). PierPass was introduced in July 2005 in response to a legislative initiative. PierPass as referenced in the MCGMAP is the program now administered by PierPass Inc.

**Port –** An entry point into, typically a harbor where ships will anchor or an airport.

**Ports of Call -** Ports at which a vessel, or string of vessels, stop so as to unload and load cargo.

**Port of Entry -** A port at which foreign goods are admitted into the receiving country.

**Post-Panamax Vessel -** A container ship too large to pass through the Panama Canal, typically with a capacity in excess of 6,000 TEUs.

**Project Cargo -** Typically associated with large machinery and equipment used in the construction of major infrastructure projects such as power plants or industrial plants. Large or voluminous shipments, or shipments composed of complex components that must be disassembled, shipped, and then re-assembled.

**Project Team –** In this document, Project Team refers to the group of consultants assembled to prepare the MCGMAP.

**Private Carrier -** A carrier that provides transportation service to the firm that owns or leases the vehicles and does not charge a fee. Private motor carriers may haul at a fee for wholly-owned subsidiaries.

**Regional Transportation Plan -** A long-term multimodal transportation plan prepared by a Metropolitan Planning Organization (MPO), typically with a 20-year outlook.

**Rolling Stock -** Traditionally means "vehicles." The term is used in logistics to refer to inventory in motion, or inventory in the pipeline, not at rest.

**Roll On/Roll Off (RO/RO) -** A term most commonly used to describe ships designed for the carriage of wheeled cargo. These ships typically have large doors in the hull and external ramps that fold down to allow rolling of wheeled cargo between the ship and the pier. The term is also applied to the wheeled cargo itself (RO/RO cargo).

**Scheduled Service -** A type of service offered by carriers for a designated route that includes multiple designated stopping points, with scheduled times of arrival and departure. The carrier aims to stay within the schedule so as to provide a reliable service that customers can depend on, and can sequence their shipments accordingly.

**Second Tier -** A term used to point out the second most significant group of players in a specific sector (see First Tier).

**Shipping Line -** Businesses that own and/or operate the ocean vessels carrying ocean-borne cargo between international ports (also referred to as steamship lines).

**Short Line -** A local rail line that covers a short distance, not part of a rail network. Ports use a short line to move goods between customers, storage areas, and staging areas within the port without interfering with main line operations.

**Simultaneous and Continuous –** Defined by the state of California as "the total cost of goods movement related infrastructure project should include the cost of required project-specific mitigation and the combined cost should be funded as the cost of the project".

**Southern California –** Refers to Southern California region as a whole; inclusive of the Counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura.

**Spur Track -** A railroad track connecting a company's plant or warehouse with the railroad's track; the user bears the cost of the spur track and its maintenance.

**Steamship Line -** A company that owns and/or operates vessels in maritime trade.

**Supply Chain(s) -** A group of physical entities such as manufacturing plants, distribution centers, conveyances, retail outlets, people, and information that are linked together through processes (such as procurement or logistics) in an integrated fashion, to supply goods or services from source through consumption.

**Supply Chain Management (SCM) -** The integration of the supplier, distributor, and customer logistics requirements into one cohesive process to include demand planning, forecasting, materials requisition, order processing, inventory allocation, order fulfillment, transportation services, receiving, invoicing, and payment.

**Terminal Operator -** The enterprise responsible for the operation of facilities for one or more modes of transportation.

**Third Party Logistics Provider (3PL) -** A third party that handles many of the supply chain logistics aspects on behalf of a large shipper/receiver. Makes many of the decisions related to the shipment of goods: mode choice, routing, transit times, pricing, staging locations, etc.

**Transloading -** The practice of transferring goods from marine containers to domestic intermodal containers or trucks at a distribution center or warehouse.

**Transportation Corridor -** A single route or combination of routes along the same general path, between at least two points (one on either end). In general, a transportation corridor is not just one road or rail line, but a combination of modes.

**Transshipment -** The shipment of merchandise to the point of destination in another country on more than one vessel or vehicle.

**Truck Climbing Lanes -** Highway lanes in which trucks must operate where the incline of the road becomes steep to the point of reducing truck speeds. They are designed to permit slower-moving trucks to operate at their own pace without reducing the speed of the mixed-flow traffic operating in the lanes without trucks. Typically located on the outside lanes of a highway in an uphill direction.

**Truckload (TL) -** Quantity of freight required to fill a truck, or at a minimum, the amount required to qualify for a truckload rate.

**Truck Turn Time -** The time it takes from when a truck arrives at a port (or intermodal yard), loads/unloads its cargo, and departs.

**Twenty-foot Equivalent Unit (TEU) -** A measure of containerized cargo equal to one standard 20-foot by eight foot by 8½ foot container. A full size 40-foot container (FEU) is counted as two TEUs.

**Vessel String -** Term used in the ocean shipping business to refer to a group of vessels that serve a specific route. In order to meet a scheduled service, the vessels are sequenced into a string so as to serve the route and meet predetermined dates and times of arrival and departure.

**Warehouse -** Storage place for products that are in transit. Principal warehouse activities include receipt of product, storage, shipment, and order picking.